Telephony.

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TELEPHONE MEN EXPRESS CONFIDENCE IN FUTURE OF INDUSTRY

Telephone men in planning for telephone development are accustomed to "looking ahead"—and it is only natural at this season of the year for them to express themselves as to some of the things which they believe lie ahead in the telephone industry.

* * * *

The year just past was a discouraging one for all business, yet many business leaders declare that the depression reached its lowest point in July and that business has gained since then. A Chicago newspaper reports that the business index curve maintained by the American Telephone & Telegraph Co. reached a low point of 56.4 per cent below normal in July. In August it rose to 51 per cent and made a further gain to 46.9 per cent in September. October recorded 46 per cent below normal and November showed about the same.

While the average man has been able to detect little, if any, change in business, apparently there has been some improvement; and unless there are decidedly disturbing factors during the next two or three months, the improvement should become visible sometime during this year.

* * * *

Confidence has been one of the strong qualities of telephone men and they are generally hopeful that the year 1933 will show considerable progress in business recovery. During the slack period of the past year, many telephone men have been looking ahead endeavoring to foresee the future requirements.

Within the past few weeks, several men in both the operating and manufacturing branches, have talked with representatives of TELEPHONY regarding the future of the industry. Taking a long-time view of the situation, they are most unanimous in predicting a telephone development and use greater than has been previously witnessed.

"For several years past," said one, "there has been a tendency on the part of industrial concerns to move from the larger centers to smaller places. The better working and living conditions in smaller places, together with the availability of electric power and the ease of transportation provided by the motor trucks and the concrete roads, will tend to emphasize this tendency of decentralization more in the future than in the past.

* * * *

"This shift from the large industrial centers to the smaller communities means more subscribers for the smaller exchange and a greater use of toll service between the small exchange and the large city center where the sales force is located. In the large city industrial plants, personal conferences are held and it is easy for the sales staff to visit the plant offices. These communications would go over the toll lines with the manufacturing plant in a small town.

It is really surprising, when one checks up, the number of concerns which have moved their manufacturing plants to smaller towns and yet maintain sales or general offices in the large city. The number is increasing each year and from all reports the results, in a business way, have been most satisfactory to all concerned.

A continuation of this 'decentralization of industry' promises much for the smaller town telephone systems."

* * * *

Another telephone man who has made a study of exchanges, particularly those of a thousand subscribers or less, commented upon the equipment and service which is supplied in the average exchange of that size.

"The exchange equipment," he said, "is generally very old and, in many cases, obsolete. The switchboard has seen many years of service and should be replaced with modern equipment providing a high grade of service. In my opinion, installation of a modern manual switchboard or dial equipment would enable these companies to operate more efficiently and on a profitable basis.

"There is no question in my mind that when business conditions are adjusted, hundreds of these smaller exchanges will be required by public demand to replace their old, out-of-date equipment with that of the latest type which will furnish adequate service at rates that people will be willing to pay."

* * * *

The illogical grouping of telephone exchanges during the past few years, which has resulted in many instances, due to the wave of buying by the so-called syndicate

companies, was referred to by an operating man especially well-informed on these situations. He expressed the belief that the next few years will see a regrouping whereby exchanges, which logically do not fit in with the efficient operation of the system by which they are owned, will be transferred to either individual ownership or to another operating group.

"During the past year several of the so-called syndicates passed into receiverships," said he. "These developments will permit of exchanges being regrouped or disposed of to individuals, as the receivers by application to the court, may obtain release of particiular properties from the mortgages which are behind the bond issues. The court would do this upon the showing that such disposal of exchanges would be of benefit to the creditors of the company.

* * * *

"There are many experienced telephone men who sold their properties and now, after several years of absence from the telephone field, are most desirous of securing small exchanges. Knowing what telephone properties can earn on, they will purchase only at a price that will enable them to rehabilitate the plant and equipment and operate it at rates that will provide revenue to properly maintain and furnish good service.

Many plants have greatly deteriorated during the past three or four years and the service in some of them is much below standard. With a rehabilitated plant and better business conditions, these exchanges should greatly increase their list of customers.

It is my opinion that the telephone industry, following improved business conditions, will regain ground lost and will be much stronger than ever before. The companies, which survive, will have capable managements that have benefited by the experiences of the last two or more years."

These views are all most encouraging and are typical of faith and confidence pervading the telephone field.

In a New Year's message to members of the Pennsylvania State Telephone & Traffic Association, President H. E. Bradley says:

"Let us resolve that during 1933 we will concentrate on this industry of ours; that we will study it from all its various angles and give it the best we have in us; that we will not hesitate to initiate new plans, new methods and new activities which may help to establish a firmer foundation for the future. And above all, that we will adapt ourselves and our industry to present-day conditions as we find them, keeping always in mind that service—good service—is our pledge to the public and must be maintained."

That's a fine program and embodies a policy which every progressive and forward-looking telephone man endorses.

COMING CONVENTIONS.

Minnesota Telephone Association, Hotel St. Paul, St. Paul, January 25, 26 and 27.

Nebraska Telephone Association, Hotel Lincoln, Lincoln, February 14 and 15.

Iowa Independent Telephone Association, Hotel Fort Des Moines, Des Moines, February 23 and 24.

Oklahoma Utilities Association, Hotel Biltmore, Oklahoma City, March 7 and 8.

Texas Independent Telephone Association, Dallas, March 14 and 15.

United States Independent Telephone Association, Tower Room, Hotel Stevens, Chicago, Ill., July 11, 12, 13 and 14.

Wires for Use in Subscribers' Premises

Improvements Made in Various Forms of Inside Wire—Descriptions of New Inside Cable—Insulation of Wire Reduced—Development of the Braid and Coloring—Methods of Identification of Wires During Their Installation

By J. B. Dixon,
Member of Technical Staff, Bell Telephone Laboratories, Inc.

To connect a subscriber's station to the terminating point of an outside line offers peculiar problems which have long justified the use of special wire known as "inside wire."

Growth in the use of the telephone, developments in building construction and interior decorating, and improvements in the wire art have all led to periodic changes in the design of this wire, and recently to the additional development of "inside wiring cable," affording many conductors in a small space. Intended solely for interior use, where they are not exposed to excessive moisture, the newest wire and cable have been particularly adapted to the installation facilities and service conditions which modern buildings afford.

In general, inside wire consists of an annealed copper conductor insulated with rubber and covered with a braid of hard glazed cotton yarn. It is available as a single wire, and in twisted form in pair, triple and quad wires. All these forms of inside wire, except the quad, have been familiar in the plant for many years, and have met plant needs eminently satisfactorily. Continued development has resulted in a number of improvements.

Inside wiring cable has been developed recently for use in the installation of P.B.X. boards, monitors, wiring plans, and other equipment, where groups of inside wire, or lead-covered textile-insulated cable, have been employed heretofore.

In forming the new inside cable, annealed copper conductors are continuously coated with a varnish-type enamel. The enameled conductors are covered with washed cotton yarn, closely served twice in reverse directions, and this covering is coated with cellulose acetate lacquer.

The insulated wires are twisted into pairs and formed into cables of 4, 6, 11, 12, 16 and 26 pairs. After stranding, the cable is bound with two spaced servings of cotton yarn and served with a layer of rubber-frictioned cotton tape. An outer covering, of closely braided unglazed cotton yarn, is finally applied.

The softness of the annealed copper used for the conductors in both wire and cable gives them maximum flexibility in handling. For many years it was necessary to employ conductors of No. 19 gauge in inside wire to secure adequate tensile strength and transmission efficiency. Improvements in installation methods, in braid strength, and in the efficiency of associated apparatus, have permitted a reduction in the size of the conductors to No. 22 gauge.

For insulating inside wire, rubber compounds are most satisfactory in both performance and cost. Recent advances in rubber chemistry, leading to the use of antioxidants and accelerators, have greatly improved the initial characteristics and increased the useful life of these compounds.

By adopting these more serviceable substances for the new wire, the nominal thickness of the rubber insulation has been

reduced from 1/32 inch to 1/64 inch, with attendant savings in space and materials. The reduced cross-sectional area is particularly valuable in congested wiring spaces, where the problem of providing additional wiring facilities is often serious.

New methods of rating rubber compounds have also materially aided this development. Samples of the compounds used in the wire are given an accelerated aging test by exposure to oxygen under high pressure. The insulation is rated before and after aging by tests in a machine

Fig. 1. The Colored Identification Threads in the New Inside Wire Are Less Conspicuous Than in the Old.

which records compression characteristics of the samples.

In the development of the insulation for inside wiring cable, space considerations were of primary importance. The use of enamel, washed textiles, and cellulose acetate, provides a cable whose diameter is only about one half that of an equivalent number of braided, rubber-insulated wires. Conductors insulated in this newly developed way have shown adequate insulation even when immersed in water for long periods.

The braid is an important factor in obtaining tensile strength in these wires and cables. In average installations, where attachments are provided at frequent intervals, the requirements on tensile strength are not severe.

Interesting considerations in the development of the braiding were those of appearance. On inside wire, which must sometimes be placed where it is exposed to view, hard glazed yarn is used. It affords economically a surface which is less subject to discoloration during installation and to the accumulation of dust and dirt than that of the less expensive soft yarns.

Since inside wiring cable is more frequently concealed, and its appearance is, therefore, somewhat less critical, unglazed yarn is used for its outer covering. To select shades which would harmonize well with modern interior decorations, a number of trial installations were made. Ivory and brown were found to meet the field requirements best, and in the new wire and cable these tints have replaced the olive green and white previously employed.

Each of the conductors of inside wire and inside wiring cable is distinctively marked to permit ready identification by plant forces during installation. In inside wire, the marker is a strand of yellow, red, green or black thread woven into the braid about the individual conductors.

The selection of the tracer shades is such that they are readily discernible at short distances, yet do not produce contrasts which are evident when the wire is observed at a distance of several feet. In the cable, the identification is obtained by coloring the second serving of yarn around each wire, in accordance with a standard code employed in other types of cable.

For appearance's sake, it is essential that the braid retain its original color as long as possible. Since the wires and cables are frequently installed in locations exposed directly to sunlight, fading requirements have been placed upon the dyed yarn. It has been found that exposure to light with the spectrum of sunlight affords a more satisfactory accelerated method of rating dyes for this purpose than exposures to the shorter wave-lengths which are not characteristic of service conditions.

Although inside wiring is intended primarily for use in locations where it is not likely to be immersed in water, it may nevertheless be wetted in the course of household cleaning. The dyed yarns are, therefore, tested for reasonable insolubility of the dyes in water.

Widely-Separated Family Holds Reunion via Telephone.

Christmas day an entire family of five brothers, a sister, and several in-laws scattered all over the country, talked together, all at the same time, over a nation-wide

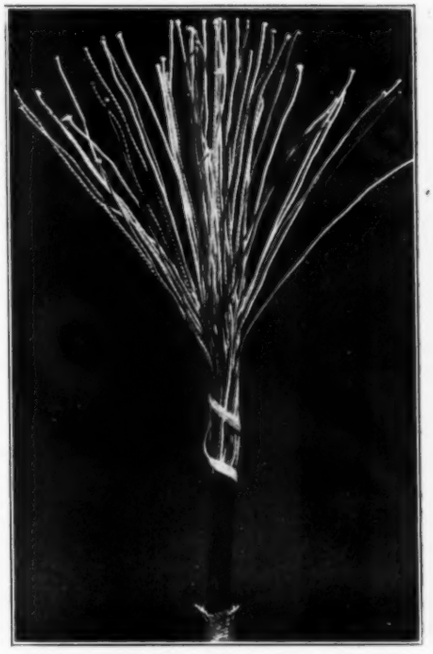


Fig. 2. Inside Wiring Cable Affords Many Conductors in a Small Space.

hook-up of telephones. This is said to be the first time that group conversations on such a large scale or between families have been held.

The idea originated with T. M. Conway, one of the five brothers, who is an official of the Chicago office of the A. T. & T. Co. A few days before Christmas he telephoned each of his brothers, C. M. Conway, of Chicago; J. M. and H. P. Conway of Spring Valley, Wis., and Neil Conway, Madison, Wis; his sister, Mrs. E. C. Wingen, of Mankato, Minn.; his wife's mother, who lives at Dixon, Ill.; his wife's sister in Santa Barbara, Cal., and his wife's brother at Newark, N. J., and told them his plan.

Each was told the time to be ready to answer his telephone on Christmas day.

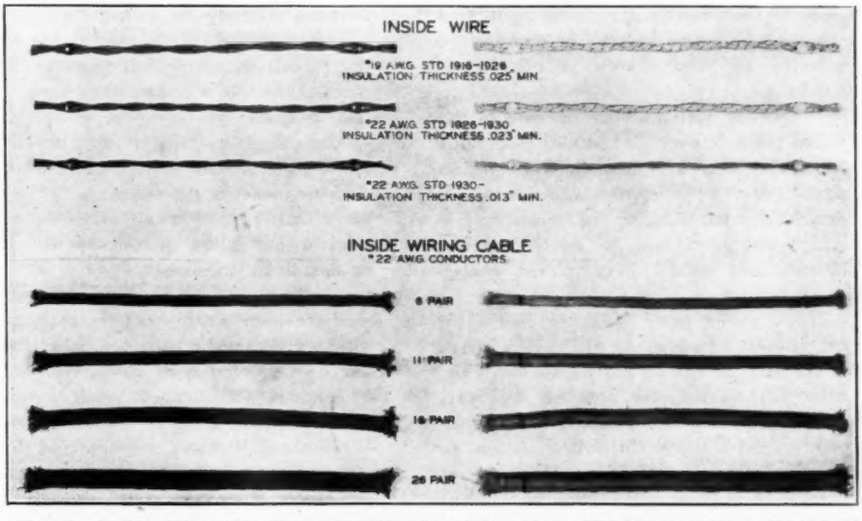


Fig. 3. Inside Wire Has Been Considerably Reduced in Thickness Over a Period of Years, and the New Inside Wiring Cable Occupies Far Less Space Than An Equivalent Number of Conductors in the Form of Inside Wire.

Promptly at 12 o'clock noon, Central Standard time, nine telephones rang in various parts of the country. T. M. Conway, of Chicago, as master of ceremonies, first called upon each of the eight other telephones participating to be sure that all were properly connected. Then he started the conversational ball rolling by asking each of his brothers and his sister questions, after which they all took turns asking each other questions. Then Mrs. T. M. Conway, of Chicago, wife of the master of ceremonies, talked with her mother and sister in Dixon, Ill., with her brother in New Jersey and with her sister in California, all at once.

Finally, after a half-hour of lively family gossip and holiday greetings, everybody said good-bye. Although only nine telephone stations were included in the hook-up, many of them had extensions so that 14 or 15 people were listening in or talking. During the half-hour exactly 26 people took part in the conversation, some of whom, including cousins in California and New Jersey, had never seen each other.

The occasion also marked the first time in 25 years in which the Conway family, five brothers and the sister, had all talked together on the same day.

Accomplishing this nine-way telephone conversation was not merely a matter of calling the various numbers. It took several days of planning to complete a circuit which would allow all of the nine to hear each one of the others and also to take part in the conversation.

The Mankato, Madison and Newark connections, for instance, were made through the Chicago exchange; but to get Dixon, Santa Barbara and Spring Valley on the same line it was necessary to get them through the St. Louis exchange. The Spring Valley, Wis., connection had to go from St. Louis up to Minneapolis and then back to Spring Valley to catch everything.

What Operators Want to Know

Routine for Handling Calls When the Calling Party Requests His Call Be Made Collect After Conversation—Entries to Be Made on Ticket When Classification of Call Changes—No. 80

By Mrs. Mayme Workman,

Traffic Supervisor, Illinois Telephone Association, Springfield, Ill.

Sometimes, after a customer talks on a long distance call, he asks the operator to make the call collect. When this request is made by the customer, the following routine is followed:

As soon as the request is made to have the call charged to the called station, the name of the calling party or firm is secured and entered on the ticket, if it does not already appear there.

If no particular person was specified on the call and the day station-to-station rate is less than 25 cents, the operator determines the charge and says to the calling party, "If I try to make this call collect, the charge will be (amount)." If the calling party still wishes to have the message charged to the called station, the operator tells the calling party that she will call him and enters "Col" in the "Collect" space on the ticket.

If the day station-to-station rate is less than 20 cents, the operator prints "P" in the called "Person" space; if the rate is 20 cents, the operator enters 25 (5) on the back of the ticket in the lower right-hand corner. She also enters the number of minutes and the charge in the proper spaces.

If the day station-to-station rate to the called place is over 20 cents, the operator tells the calling party that she will call him and enters "Col" in the "Collect" space, determines the number of minutes for which charge should be made and the charge, and enters them in the proper spaces.

If the called party is on the line when the request to make the call collect is received and the calling party does not withdraw his request, the operator will say, "Will you hang up, please? I will call you." She reaches the called station as on a collect call and says, "Mr. (calling party) at (calling place) has just talked with your telephone and wishes you to pay for the call. Will you accept the charge?"

If the person who answers asks who talked at the called station, the operator secures this information from the calling party and gives it to the called station. When the operator receives a reply, she acknowledges it and clears the toll circuit.

She then reaches the calling station and if the charge is accepted, says, "On Mr. (calling party's) call to (called place) they will accept the charge," releases the calling line and enters "Yes" in the "Accepted" space, and files the ticket. If the charge is not accepted, say, "On Mr. (calling party')s call to (called place), they will not accept the charge," release the calling line, enter "No" in the "Accepted" space and "Chg not accepted (time)" in the space for reports, draw a line through "Col" and file the ticket.

If the charge is accepted by the called station or party, enter the name of the calling and called places and the prefix of the called number, if any, in full if this has not already been done.

Questions from Illinois Operators.

1. If a person places a call and when the operator is ready the calling party has left, how is this call handled? Do we try to call the party calling every 20 minutes, or do we wait for them to call in again?
2. If the subscriber asks to have his call made collect after conversation, what entry is made on the ticket?
3. On a built-up circuit call, when do we ask for the calling party's number if he is holding the line?
4. On a message which has been repeated, we have been writing out the message repeated on the back of the ticket for our own protection of its correctness. This has been challenged. What is your opinion of this practice?
5. When a call is placed by name and the operator feels that it is person-to-person, is it necessary to ask: "Will you talk to anyone who answers?"

For answers to these questions from real Illinois operators, please turn to page 31.

Speaker Garner Has Good Service; He Hired Operators.

Twenty years ago, according to a recent Associated Press story from Washington, D. C., Speaker Garner picked out two expert telephone girls—Grace Gardner and Neenah Thomas—and they still are speeding his Capitol calls.

They're privileged persons and can call on the speaker and Mrs. Garner any old time and get audience.

Mrs. Garner tells that the girls gave them such good service at the old Burlington Hotel that Mr. Garner got them jobs "on the hill." Then his home service became so bad that he complained to the hotel management, and he was asked how he could expect good service when he took away the efficient operators.

Remembered Telephone Number Proves Clue to Woman's Identity.

An amnesia victim, a woman, was found wandering about the streets of Atlantic City, N. J., not long ago, unable to give any clue to her name or home. After several hours of patient questioning she did recall a telephone number.

The police looked over the telephone directories of several cities and finally discovered the central office designation "Adams," the one given by the woman, as a Washington, D. C., office.

A telephone call to that city cleared up the matter; and in a few hours the woman was safe in the hands of relatives, thanks to the telephone number that remained in a memory cell of her brain.

Prices in the Metal Markets.

New York, January 3: Copper—Quiet; electrolytic spot, 5c; future, 5⅛c. Tin—Barely steady; spot and nearby, $22.55; future, $22.70. Lead—Steady; spot New York, 3.00c; East St. Louis, 2.87c. Zinc—Dull; East St. Louis spot and future, 3.12c. Antimony—5.40c.

Points of Interest in Traffic Department

Girl Chosen for Night Operator Should Be of Strong Character, Courageous, Self-Confident and Loyal—Traffic Department Cooperates With Plant in Maintaining Service—Addresses Before Traffic Conference of Iowa Convention

Some Qualifications for a Night Telephone Operator.

By HAZEL GILLASPEY,
Chief Operator, Lucas County Telephone Co., Chariton, Iowa

I do not feel that the qualifications of a night operator need to vary to a great extent from those of the day operator. At the same time I do not believe that all-night operators would make good day operators.

One of the most important qualities we demand in a night operator, as in all of our employes, is character. I feel that it is more essential for the night operator to have a stronger character than the day operator because she is working alone. She does not get the supervision that it is possible to give the day operators.

The night operator is thrown in more personal contact with the public than the day operator, due to the fact that many of the night calls are emergency calls and require closer supervision. The satsfactory handling of such calls gives the operator an opportunity to impress on the subscriber the value of good service, together with securing permanency in her position. This also gives the company for which she is working a feeling of confidence in the community.

My second qualification is a neat personal appearance. Even though you are alone where no one can see you, I am sure that most of you will agree that neatness and cleanliness are major aids in accomplishing one's work in an accurate and efficient manner. You can command a greater respect from the other operators and the public, and especially with your employer, if you present a neat personal appearance.

Courage and self-confidence are essential to a night operator's qualifications. Not all girls have the courage to stay in an office by themselves all night. They must have confidence to handle the different problems that come up while they are on duty, such as fires, robberies, and other emergency calls. Without this necessary courage, an operator might become confused and fail to do the right thing at the right time and cause a calamity in the community, which would jeopardize her job and cause her company to lose the confidence of its people.

My last qualification, which probably includes the preceding ones, is loyalty. I hardly believe it would be possible for an operator to be loyal and not fulfill the other requirements. This means loyalty to the company by whom she is being employed, loyalty to the people who are being served by her company and all connecting companies, and loyalty to herself and the other employes of the company.

I am sure that a girl who has character, a neat personal appearance, courage and self-confidence, and loyalty can efficiently and responsibly fulfill the position of night operator.

Traffic Lends a Hand in Keeping Highways and Byways Clear.

By MARIE HANNY,
District Traffic Supervisor, Northwestern Bell Telephone Co., Des Moines, Iowa.

An objective for telephone service was expressed by Walter S. Gifford when he said: "A telephone service for this nation so far as humanly possible free from imperfections, errors and delays and enabling anyone, anywhere, at any time to pick up a telephone and talk to anyone else, anywhere else, clearly, quickly and at a reasonable cost."

The responsibility for meeting this service objective rests, to no small extent, on each and every person engaged in telephone operating work. Should any one of the requirements outlined be omitted, the customers' service would not be complete, and since my subject is to be "Traffic Lends a Hand in Keeping the Highways and Byways Clear," let us consider only the part that satisfactory transmission takes in accomplishing these service objectives.

By satisfactory transmission I refer, of course, not to any technical measure, but only to that which is commonly known to all of us: a quality of transmission which will permit a normal person to speak to and be heard by the person at the other end of the line.

Let us consider then the effect that poor transmission would have on the service objectives outlined. Surely, we would not meet the requirement implied by the word "clearly." It might also affect the "quickly" requirement, and limit the "anywhere" possibilities, and would surely result in "imperfections, errors and delays."

Transmission of good quality is obviously essential in a complete telephone service and while the responsibility of maintaining toll lines, subscribers' telephones and central office equipment, in a way that will result in satisfactory transmission, is in the hands of the wire chiefs and linemen, there are ways in which we can be of assistance to them.

As operating people we do not know, of course, all of the things that cause poor transmission. We do know that such simple things as a worn or perhaps only a dirty plug, a worn jack, a worn cord, a defective key, weak batteries and numerous other minor cases of trouble are potential cases of poor transmission.

Our first step in assisting in such cases is probably in handling our equipment in a way that will reduce the number of cases of equipment trouble to a minimum; second, to report the trouble to the wire chief promptly, and third, not re-use that piece of equipment until the trouble is cleared.

In connection with toll line transmission, we usually encounter one of two conditions. Either the toll line is entirely out of order, or the toll line is not out of order, but the transmission is not satisfactory when the connection is established. Our operating practice, therefore, provides for handling both trouble reports and transmission reports.

In the case of toll circuit trouble, our first step is to report the trouble to the operator at the other end of the line in order that she may report it to her office. Then report the trouble to the wire chief of our own office.

The transmission cases are recorded in somewhat more detail, because it is sometimes difficult to determine the exact location of the cause of the trouble. We make poor transmission reports: (1) when we are unable to establish a conversation on account of poor transmission; (2) when a call is canceled because of poor transmission; (3) when a message has to be repeated; (4) when the customer complains to the operator about the transmission; (5) when the subscriber requests an adjustment of the time on account of inability to hear. The report also shows a brief description of the difficulty, and a record of the equipment used at the originating and direct circuit point.

These transmission reports are made at the toll center offices covering their own traffic and that of their tributaries. The responsibility for making the report is placed with the operator at the originating toll center.

As a result of properly reporting these cases the operating force is presenting the facts which serve as evidence in determining the cause of poor transmission cases and by so doing they are materially assisting in more nearly meeting the objective of a complete telephone service.

Our part in lending a hand in keeping the highways and byways clear, then, seems to be in furnishing the facts, in connection with equipment trouble, toll line trouble and poor transmission cases which we encounter in our every-day work, in such

detail that they can be properly used by our linemen co-workers in correcting the fault; and also by avoiding the use of facilities that may give the customer something less than good service.

I have only one other suggestion and that is a confidential tip to chief operators. Our wire chiefs are just as interested as we are in maintaining good service. They are busy every day doing their work just as we are, and sometimes they are so busy that they may overlook or delay taking care of trouble that may result in poor service. In such cases it cannot help but be beneficial to present to your wire chief, in the diplomatic way that characterizes most chief operators, the part that clearing of trouble plays in making it possible for the operating force to give the best telephone service to customers.

Heavy Christmas Traffic on Overseas Telephone Circuits.

The exchange of Yuletide greetings again produced a heavy traffic on the overseas radio telephone circuits of the American Telephone & Telegraph Co. A total of 287 conversations were held on Christmas day. This total was somewhat below that for Christmas day in 1931, when 344 messages were handled. On the circuits to Europe alone, however, last year's record of 182 was broken with a total of 190.

The traffic involved cities, towns and villages in all sections of the United States. Points in Europe, South America, Australia, Hawaii, the Bahamas and Bermuda, as well as three transatlantic liners, were represented at the distant end of the circuits.

Transmission conditions on practically all radio circuits were exceptionally good throughout the day. More than 90 per cent of all calls filed were completed.

There were 87 conversations between points in Great Britain and the United States. France accounted for 37 and Germany 11. In addition to these there were calls to or from practically every other country in Europe from Norway to Spain and from Belgium to Roumania. One call was from the Balearic Islands.

A total of 39 calls were handled between the United States and South American points. These represented practically every country with which the United States has telephone service. Four were with Venezuela and were handled over the recently established circuits from Miami. Several calls were also handled by the Miami station between United States points and the Bahamas.

A total of 37 calls passed over the circuit between San Francisco and Honolulu. There were six calls between the United States and Australia. Ten were also set up on the circuit to Bermuda. The three ships at sea—the Majestic, Rex and Monarch of Bermuda—handled a total of eight calls.

New York City accounted for the major part of the calls. Another substantial portion involved New York's suburbs. The remainder were scattered over the country all the way to the Pacific coast.

Officers of American Institute of Electrical Engineers Nominated.

The national nominating committee of the American Institute of Electrical Engineers, consisting of members from various parts of the country, has nominated the following official ticket of candidates for the offices becoming vacant August 1, 1933:

For president: John B. Whitehead, professor of electrical engineering and dean of the faculty of engineering, Johns Hopkins University, Baltimore, Md.

For vice-presidents: Middle eastern district, A. M. Wilson, professor of electrical engineering, University of Cincinnati, Cincinnati, Ohio; Southern district, F. M. Craft, chief engineer, Southern Bell Telephone & Telegraph Co., Atlanta, Ga.; North central district, R. B. Bonney, educational director, Mountain States Telephone & Telegraph Co., Denver, Colo.; Pacific district, R. W. Sorensen, senior professor of electrical engineering, California Institute of Technology, Pasadena, Calif.; and Canada district, A. H. Hull, station engineer, Hydro-Electric Power Commission of Ontario, Toronto, Ont.

For directors: P. B. Juhnke, chief load dispatcher, Commonwealth Edison Co., Chicago, Ill.; Everett S. Lee, engineer in charge, general engineering laboratory, General Electric Co., Schenectady, N. Y.; and L. W. W. Morrow, editor, "Electrical World," New York, N. Y.

For national treasurer: W. I. Slichter, professor of electrical engineering, Columbia University, New York, N. Y.

These official candidates, together with any independent nominees who may be proposed later in the manner specified by the constitution and by-laws, will be voted upon by the membership at the coming election in the spring of this year.

JANUARY AND HAPPY NEW YEAR

By Miss Anne Barnes,
Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

The New Year's in, the Old Year's out,
The bells are ringing while we merrily shout;
And many a one tonight is praying—
"Let it bring me a chance to work."

The circle of the seasons for 1932 was completed at midnight, December 31, and 1933's circle began just as the Old Year ended. In fact, they blended.

Did we look back, saddened and hushed in spirit, at the passing of the Old Year? Did we recall the beauty of the woods now stripped of their foliage; of the green fields now white; of the soft, fragrant wind now an icy blast?

No, we turned our faces away from the Old Year now dead, toward the New Year just born, and "Off with the old, on with the new," our voices shouted. Whistles shrilled, horns tooted, guns banged, and orchestras jazzed as the New Year dawned.

We hailed the entrance of the New Year in the same spirit of lightness and hilarity that we welcome each New Year. Nevertheless, we were deeply conscious of feelings of renewed hope, confidence and, yes, the belief that world conditions are on the up-grade; even as we know that the New Year, ushered into a cold, barren world stripped of beauty, and lashed with icy blasts, will again be warm, beautiful, and productive.

We think of January as the month of snowdrifts piled high by roadsides; strong, stinging winds; long icicles, like pointed swords, hanging from the eaves of houses; snow crystals glittering in the white sunlight; cracking timber; footsteps creaking on the hard snow; rosy sunsets beyond white fields; walks to be shoveled before breakfast; appetites whetted by the frosty air and unusual exercise so early in the morning; the fragrance of bacon, buckwheat cakes and coffee greeting us as we enter the house after our morning work. These are some of the delightful memories we have of January.

"Janus am I, oldest of potentates:
Forward I look and backward, and below
I count, a god of Venus and gates,
The year, that through my portals come and go.
I block the roads, and drift the fields with snow;
I chase the wild fowl to the frozen fen;
My frosts congeal the rivers in their flow,
My fires light up the hearths and hearts of men."
—Longfellow.

Proper Light an Aid to Good Work

Importance of Good Lighting in the Central Office—Increased Accuracy in Workmanship, Less Eyestrain and Improved Morale Is the Result—Judging Illumination Produced by Various Lamps—Rules for Using Extension Lamps

By John A. Bracken

Scientific history informs us that primitive man used torches for the purpose of artificial lighting, and in some cases crude lanterns holding swarms of fireflys to guide him in the dark. Next in the order of artificial lights came the candle, and then the kerosene lamp. Following the kerosene lamp was the gas light, and finally, the modern electric lamp.

Light, like sound, is said to be a wave motion, but light vibrations are of a medium called ether. The light vibrations are transverse—that is, broader than long—whereas vibrations that produce sound are of some material medium and are longitudinal. A further difference is that sound travels with the velocity of about 1,100 feet per second in air, whereas light waves travel at the rate of 186,000 miles per second.

If light falls upon a smooth surface, it will be regularly reflected. If this light be received by the eye, the latter will see not the reflecting surface, but the source of light. For example, light reflected from the surface of highly-polished furniture, or the surface of still water, shows this property. If, on the other hand, the light falls upon a body having an irregular surface, such as a piece of white paper or the wall of a room, the light is scattered in all directions. This is called diffused light.

It is by means of diffused light that we are enabled to see clearly the outlines of objects. If every object possessed a polished surface, we would see only the light of the source and would not be able to make out clearly and definitely the outline and nature of the reflecting surface.

A room may be said to be well lighted when the eye is easily able to distinguish the various objects in the room in minute detail of preception. This completeness of visual perception depends upon three conditions:

1 A sufficient brightness of illumination.

2. A proper location of the light sources so as to bring out that combination of soft shadows which is so essential to the perception of form.

3. A proper composition of the light so as to bring out those physical differences in objects which the eye perceives as variations of color. The composition of light refers to the relative intensities of the various wave lengths which are present in the light.

The presence of excessively brilliant light in a field of vision greatly hinders visual perception. The eye adapts itself automatically to the brightest lights in the field of vision, and all perception of detail in the shadows is lost. The effect of glare is especially marked when the field of vision includes a bright, unshaded lamp.

The explanation of the effect of glare is as follows: In the first place a beam of light entering the eye from a bright source illuminates the whole interior of the eye just as a beam of sunlight, entering a window, illuminates a room. This diffused light in the eye illuminates and excites the entire retina, including those portions where the images of the deeper shadows fall, and thereby tends to obliterate all detail of perception.

In the second place, the portions of the retina upon which the brilliant light falls become greatly reduced in sensitiveness because of fatigue. The continual wandering of the eye brings the image of dark regions upon this fatigued portion of the retina, and the result is almost total blindness like that produced when one looks out of a window and then turns toward a dark corner of a room.

In the third place, the pupils of the eyes contract greatly when there is a bright light in the field of vision. This contraction lessens the effective brightness not only of the field but also of the deep shadows, and the contraction of the pupils of the eyes tends to make the shadows appear like black patches.

The proper distribution of light with reference to the most satisfactory illumination of telephone central office equipment depends in a large measure upon the kind of lighting system used.

There are three standard methods of electric light distribution which are commonly used. These are the direct method, the indirect method, and the semi-direct method.

The direct method is one in which the light shines directly from the source upon the area illuminated. The indirect method is one in which the light is placed within bowl-like reflectors near the ceiling or wall.

The semi-direct method is designed to combine the advantages of both the direct and indirect lighting systems by reflecting part of the light directly upon a limited area and part of the ceiling, from which it is reflected diffusely. In this method of illumination, that portion of the light which is intended to fall upon a given area—as upon central office equipment, etc.—is usually transmitted through a special screen or shade.

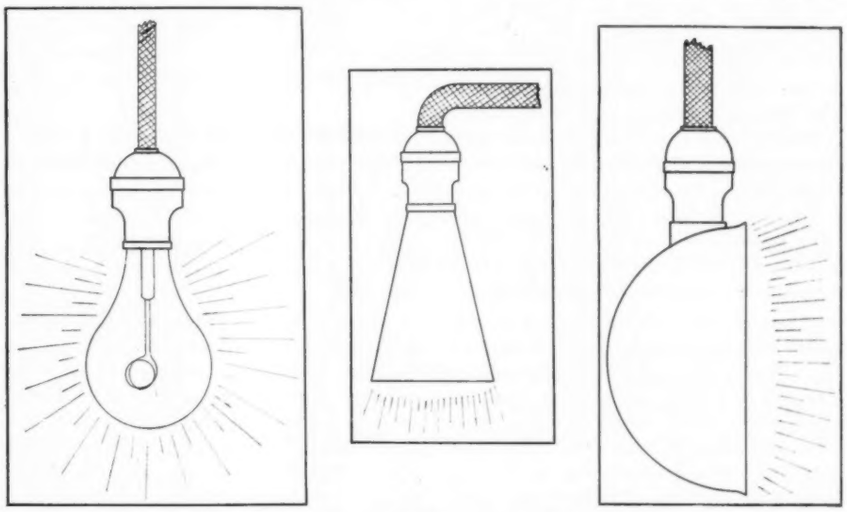


Fig. 1. Distribution of Light About Extension Lamp Not Provided With Reflector.—Fig. 2. Light Distribution About Lamp Equipped With Dark Metal Shield.—Fig. 3. Distribution of Light About an Extension Lamp Equipped With a Suitable Reflector.

However, the kind of lighting system used, or the quantity of light falling upon a given area, is not the only thing which determines whether or not one can see well. The proper diffusion of the light and the illumination of the surroundings are of great importance. In this respect, in order to properly adjust or repair certain pieces of apparatus it is frequently necessary to furnish additional light.

For the purpose of supplying more light it is common practice to use an individual extension or drop lamp. When an extension lamp is used, it is very important that means be taken for concentrating the light from the individual lamp at the point where the light is required.

Fig. 1 shows the approximate distribution of light about an extension lamp not provided with a shade or reflector. Here much of the light is wasted in directions not useful in illuminating the equipment worked on. When the equipment is viewed from behind the lamp, almost as much light enters the eye as is effective on the apparatus itself.

The approximate distribution of light about an extension lamp which is equipped with a dark metal shield is shown in Fig. 2. The eyes are protected from the glare, but the amount of light on the work is about the same as before; that is, the improvement is only a partial one.

Fig. 3 shows the approximate distribution of light about a lamp equipped with a suitable reflector. By comparing this illustration with the two preceding, it is apparent that here the eyes are protected and that most of the light is directed to the desired point by means of the reflecting surface on the inside of the reflector.

Therefore, if the illumination was sufficient without a reflector in the first case for economical reasons, a smaller lamp might be used when equipped with a reflector so designed as to direct the bulk of the light to the required point. On the other hand, if the illumination was insufficient with the bare lamp, it will probably be adequate with the addition of a well-designed reflector.

Suggested rules relative to working with extension lamps are:

1. The illumination produced should not be judged by looking at the lamp. The lamp is not meant chiefly to be seen but rather for seeing other things. The lamp which itself looks most brilliant may be for that reason least effective. The light that comes directly from the lamp to the eyes does no good and may interfere seriously with the useful light which has come from the lamp to surrounding objects and thence to the eye.

2. Unshaded lamps should not be used. The bare filament is injuriously bright, and without a shade one's glance is certain to fall upon the dazzling lamp more or less frequently.

In this respect telephone central office men realize the importance of shielding their eyes from the light of a bare lamp, because they often surround the bare lamp with either a piece of cardboard or a metal cone. This, while shielding the eyes, helps to direct the light to the object being worked.

It is best, however, to use a standard extension lamp shade for this purpose in order to properly diffuse the light as well as to protect the eyes from the glare. Moreover, diffused light—that is light from a considerable surface—usually gives more effective illumination than that from a small source such as hand-fashioned lamp shades.

3. The lamp should be so placed that there is little likelihood of getting the brilliant reflection from enameled equipment parts, covers, glazed paper, or other shiny material, which is so detrimental to good seeing.

4. The extension lamp should not be placed too close to the work. If too close there is an excessive contrast between the work and the surrounding objects and the eye does not adapt itself properly to the intensity of light on the work.

5. A flickering light should never be worked with. In such a light the eye is constantly being called upon to readjust itself, and is never properly adapted for the light it receives at any particular instant. Severe eye strain or fatigue is the result.

6. In order to get all the light from an extension lamp in the right place, the reflector should be kept clean. Clean reflectors save the light.

The principal item of importance relative to good lighting in the central office is an increased accuracy in workmanship, less eye strain and a more cheerful and happy attitude on the part of all.

Nebraska Convention to Feature Experiences in Meeting Problems.

The greater part of the convention of the Nebraska Telephone Association to be held at Lincoln, February 14 and 15, will be given over to an old-time experience meeting.

Officers of the association believe that with economic conditions as they have been and are, members in attendance will be interested most in getting the answers to a number of knotty problems connected with the financial management of their properties. With that end in view they have summoned a number of men who have found the answers in their own experience, to be present to give them. Out of the experience also of members from the smaller companies, much is expected to come of value to their colleagues.

In order to remove every obstacle to attending the meeting the directors have ordered that no registration fee be charged and, as hotel rates are lower than in many years, they expect a large attendance.

While the program does not contain as many outstanding figures in the field of telephony as usual, this was deliberately done in order to give full time to round-the-table conferences. The program has been shortened to two days. The opening sessions will be held the afternoon of the first day. President Becker, Treasurer Bell and Secretary Kloidy will present their annual reports, after J. H. Agee, general manager of the Lincoln Telephone & Telegraph Co., welcomes the members to the city.

On the program for the two days are: I. J. Devoe, chairman, northwestern district of accounting division of the national association, who will discuss work done on accounting problems. W. R. Johnson, general commercial superintendent of the Northwestern Bell Telephone Co., who talks on "Necessary Transpositions in Business Methods" made necessary by conditions; N. S. Spears, sales training supervisor for the Northwestern Bell Telephone Co., who will discuss "Generating More Sales Power," detailing what his company has done in molding its employes into an efficient sales force.

D. E. McGregor, of Gibbon, will have charge of the memorial service to be held at 11 o'clock on the morning of the second day.

An outstanding feature of the program will be an address by C. B. Steward, who is secretary of the Nebraska farm bureau, an official of the Farmers' National Grain Co. and president of the West Central Grain Co. of Omaha, an association of co-operative elevators. Mr. Steward will talk on "The Business Side of Farming," and his address is being looked forward to as an expression of farmer opinion toward utility management.

Secretary Chas. C. Deering of the United States Independent Telephone Association, is to tell of the situation nationally and what the association officers have been doing to better the position of the telephone companies.

B. G. Miller of the Crete Telephone Co. will lead the general discussion of "Our Problems." Everybody present will be invited to take part. Election of directors will be early in the Wednesday session.

The educational feature of the program will be presented by B. C. Burden, transmission engineer of the Lincoln Telephone & Telegraph Co., with demonstrations of narrowcasting as opposed to broadcasting: Robo, the machine man; the photoelectric eye and transmission on light rays. Special features are being prepared for the convention. An address will be given the first evening. The second evening the annual banquet, with dancing following, will be held.

Publication Announced of Three New American Standards.

Publication of the following new standards by the American Institute of Electrical Engineers is announced by the American Standards Association, under whose auspices the standards were formulated:

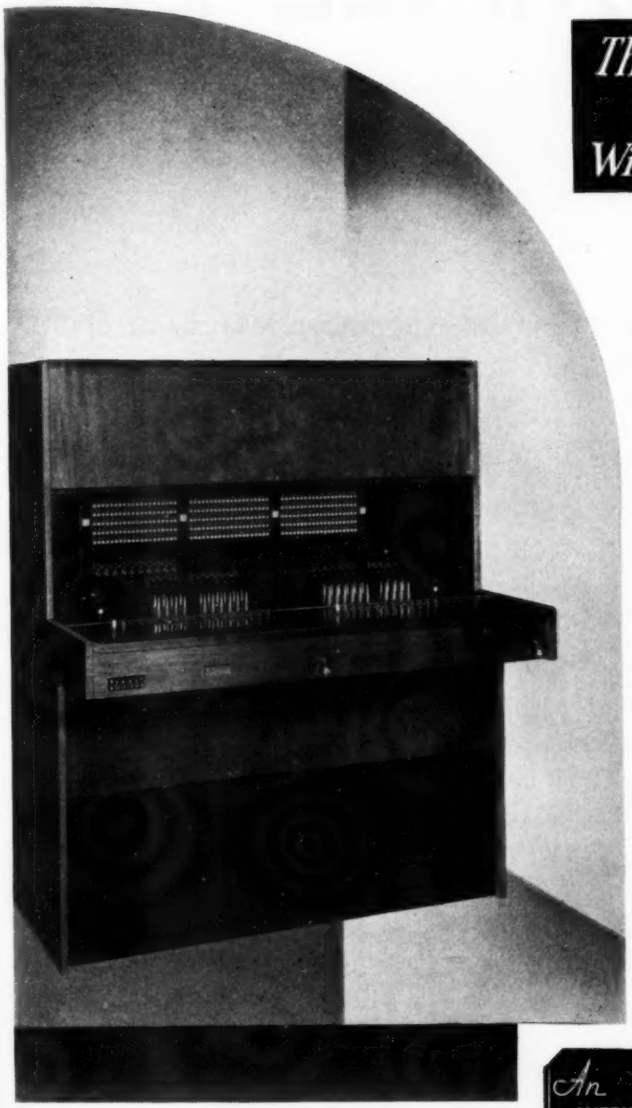
American Tentative Standard for Weatherproof Wires and Cables (C8k1-1932).

American Tentative Standard for Heat-Resisting Wires and Cables (C8k2-1932).

American Standard Definitions and General Standards for Wires and Cables (C8a-1932).

The price of the standards for heat-resisting wires and cables is 20 cents each, and that of the standard definitions and general standards 40 cents. They may be purchased either from the American Institute of Electrical Engineers or from the American Standards Association, 29 West 39th Street, New York.

For The Small Exchange



Type 32-A-28
Multiple
Type 32-A-29
Non-Multiple

The Monotype Community Central Battery Switchboard *With Direct Line Lamp Signaling*

PARTICULARLY designed for small communities where an improved telephone service is imperative and where the initial investment available for switching apparatus is limited to the minimum.

There are no line relays in this new switchboard. They have been completely eliminated by the development of a new tungsten-filament lamp and special circuits which provide uniform brilliant signals on lines ranging from 0 to 800 ohms loop (line) resistance.

As a result of this important improvement, the initial cost of this new unit is reduced to a point far below that of any other central battery equipment ever offered for the small exchange!

Let us give you the low-figure quotation on one of these units for your exchange.

Write—today—for detailed information and prices.

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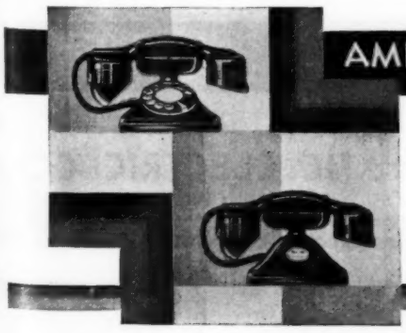

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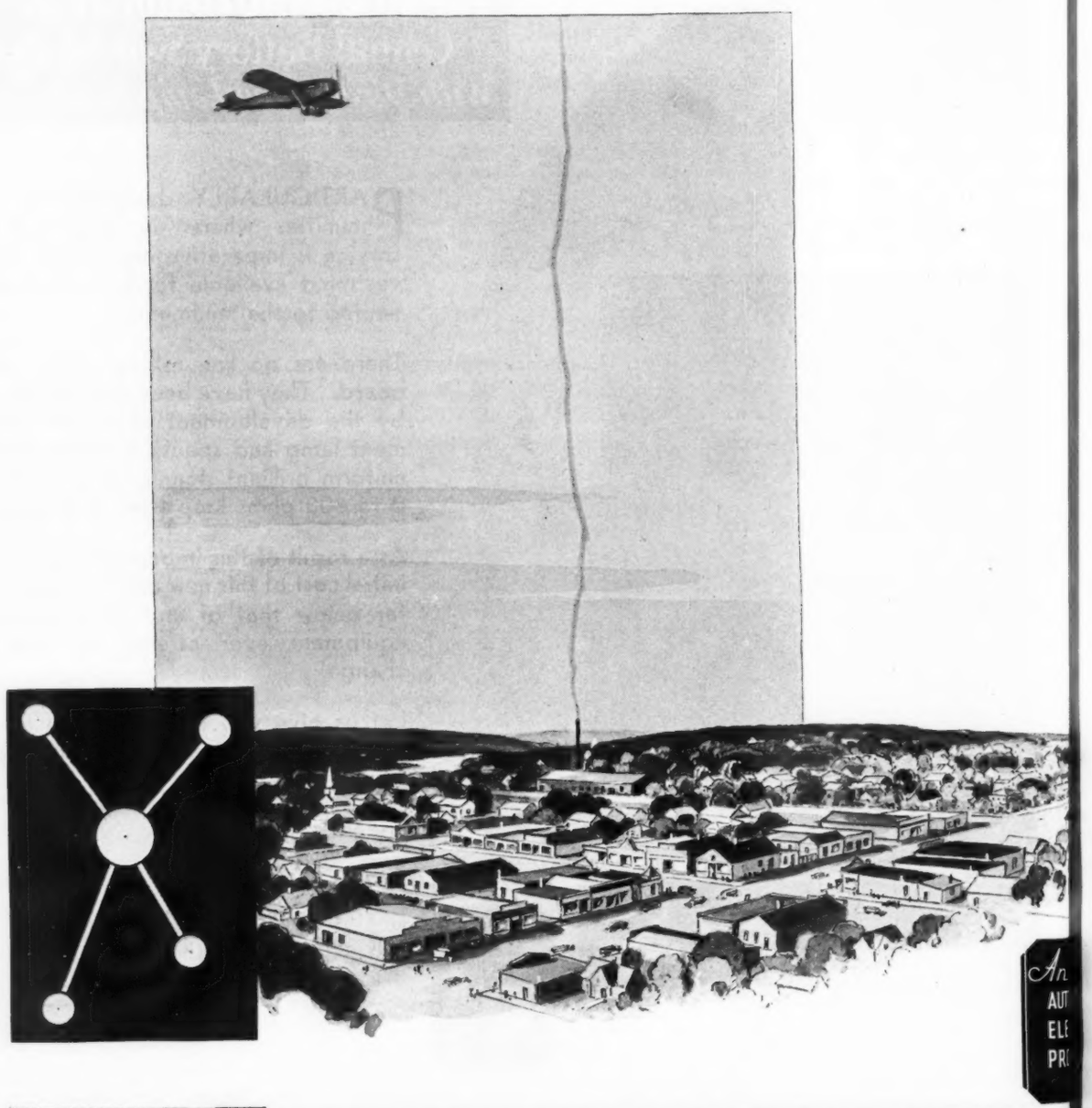

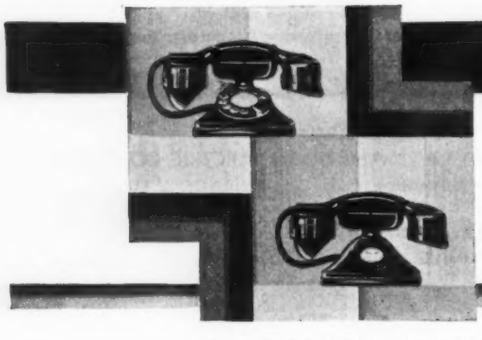

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The Monomatic* R.C.X.

THE small rural exchange — a real problem nowadays! An antiquated switchboard, a handful of lines, some owned—some switched, many of them grounded and heavily loaded with stations. Yet no matter how light the traffic, present methods of operation require ONE OR MORE OPERATORS AT EACH EXCHANGE.

The R.C.X. fits just this situation—eliminates this operating expense. Immediately profitable, even under the most unfavorable conditions, it will pay for itself from savings in traffic expense in from two to five years.

It uses the SAME TELEPHONES, either magneto or central battery, the SAME LINES, the SAME CODE RINGING, the SAME MAIN FRAME, ALL WITHOUT CHANGE. The only new equipment is the R.C.X. board itself—and its cost is unbelievably low.

Write at once for prices and further details.

Existing instruments, either magneto or common battery type, can be used with the Strowger R.C.X. without change.

*"*Monomatic*" designates a new line of small, LOW-PRICED switchboards designed especially for profitable operation of rural exchanges under present-day conditions.*

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For the Small Exchange—
The Monomatic* C.A.X.

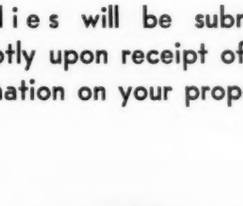
THE Monomatic C.A.X. has been designed for small rural exchanges desiring to combine THE FINEST TYPE OF SERVICE OBTAINABLE with exceedingly low capital investment.

An AUTOMATIC ELECTRIC PRODUCT

It represents the last word in full automatic service — yet it uses proven, time-tried switching units at a price the small exchange owner can afford to pay.

These C.A.X. units are self-contained and compact. Then cay be used with either magneto or common battery telephones, and with grounded or metallic lines. C.A.X. exchanges require NO OPERATORS AND NO ATTENTION, other than an occasional visit of inspection.

[Studies will be submitted promptly upon receipt of brief information on your properties.]



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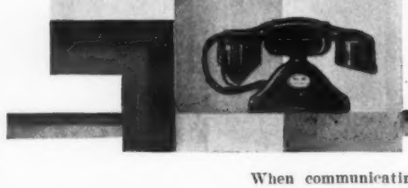

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Outside Plant Men Talk Things Over

The Tragic Results of One Accident Caused by Carelessness.

By JAKE, THE LINEMAN.

Mornin', buddies! How be they goin' today? I hope things are coastin' along pretty smoothly fer all of you, an' that they keep on movin' that way.

The other evenin' jist as I was downin' my last cup of coffee, someone knocked at the back door. I opened the door, an' found a kind-lookin' ole tramp who asked if I could spare him a cup of coffee. At first I was gonna say no, an' then I noticed that the fellow had one arm gone, an' had only two fingers on the remainin' hand. Fer some reason or other I sorta like to talk to crippled men an' find out what made cripples of them. So I invited the ole feller in, an' as he ate some food an' drank his coffee I got a story out of him from which I think you buddies can get a valuable lesson.

Many years ago the old tramp had been an industrious young man, with dreams of bein' a doctor, of havin' a happy home an' a lovin' family. By workin' nights he managed to attain a high school education. After finishin' high school, he obtained a position in a factory and planned to save his money so that he could go to college the following fall. But, three weeks before he was to leave for college, a hangin' shirt sleeve became entangled in a machine and before the machine could be stopped his right arm and three fingers of his left hand were so badly crushed and mangled that they had to be amputated a few hours later.

Buddies, that accident ruined the young man's future, killed his hopes and ambitions, and made a tramp out of him. The one life granted to him had been ruined by one careless act. The world which had been so bright before, then seemed black an' in an endeavor to forget the happy things that might have been, he took to the road and roamed here an' there.

Buddies, that poor fellow sure paid a costly price for a bit of carelessness. Thousands of humans are doing the same thing. Last year 348,000 persons were crippled for life through accidents! How would you like to lose an arm, a leg, a foot, a hand or be blinded? What could you do if you were suddenly crippled for life? What would your family do, if they were suddenly deprived of the income which you had previously provided?

Think those questions over, buddies, and I'll bet you resolve to do everything as safely as you possibly can. If you do this, Ole Man Accident won't stop your future progress by crippling you. Enuf sed!

Well, what say we have some signals, fer if we're gonna have perfect accident records in '33 we're gonna need a lot of signals. Everybody settin' comfortable? O. K., our first signal is:

Stay away from ropes under strain. It's better to stay away than be "put away."

Test strand which does not look good by throwing a rope over it and loading it with the weight of two men.

Only a careless splicer will allow paraffin or solder drippings to fall into the street. It's a good idea, when boiling out a splice, to catch the paraffin drippings in a pot or pan. Also, when wiping a joint catch the solder drippings in a pan.

Paraffin fumes can become ignited, so it's a good safety practice to keep tent heaters and other open flames away from the splicer's tent when you're boiling out a splice during the winter when a tent is necessary.

Always report broken or loose steps, broken windows, loose floor coverings, splintered floors and loose handrails. It's a lot better to fix up things before they cause an accident than it is to fix them after the accident has happened.

Careless office workers are constantly leaving desk drawers open, cabinet doors open and some even tilt back in their chairs at dangerous angles. These are little points but at the same time little things can cause a lot of pain.

Care for your hands when handling stranded cable by wearing gloves. Be on the lookout for broken strands.

In using a ladder make sure that the distance from the base of the ladder to the wall upon which it is leaning is approximately one-fourth the length of the ladder. If this position cannot be obtained the ladder should be braced or held to keep it from slipping.

Do you know that past results prove that the "safe worker" does the best job in the best time and at the least cost? Safe practices will help you make your units daily and still have a few moments to spare.

Every job has two ways in which it may be done—the safe way and the careless way. Even when you're carrying pipe there's a safe way for doing that. Place the hands under the pipe and lock the fingers.

Never allow children to handle tools or materials. Suppose they should get hurt by them? You would be on the "spot." Nuff sed!

Take proper precautions when cutting wire or strand to make sure that the ends are secured. By practicing this rule you'll be protecting your eyes.

"Stop Accidents" should be the constant slogan of all of us. Accidents can be stopped, and I feel sure that during the current year we will all do our part to stamp them out of the telephone industry.

Durin' the months to come I wish to urge all of you, if you have any ideas regarding safety, first aid or health, to send them in to me, and I'll make use of them and give you full credit for each idea. If you have any comments, criticisms or suggestions let me have them, for I'll sure appreciate them.

The other day I received a nice letter from C. C. Stone, Southwestern Bell Telephone Co., Paris, Texas, an' as it reflects the tone of the many letters I received durin' 1932, and at the same time brings out a valuable suggestion for the use of these articles, I'm gonna print it here:

Just thought I'd write you a few lines of appreciation for the splendid service you are rendering by publishing your safety rules.

Immediately after you started them last year, I began furnishing them to our employes for use in their "safety first" meetings and they have really been very enthusiastically received; in fact, if I fail to send them out each week employes begin asking why.

Wishing you the best of success, I am

Very truly yours,

C. C. STONE.

Many thanks, Stone, for your letter. I just wonder how many other companies are using my articles for material at their safety meetings. If your company is, drop me a line and I'll keep your company in mind whenever I have any interesting information to send out.

Well, I'll be ramblin'. Have you answered the questions I gave you last week? Please send them in. Use as yer safety thought: "Why have an accident when it's so easy to use safety?"

So long! I'll be seein' you Saturday.

The Tone Test Set and Experience of Cablemen with It.

By THE OLD CABLE SPLICER.

The tone test set with exploring coil is, I believe, generally considered the best all-around means of locating cable trouble in the small and medium-sized telephone exchange. These sets can be procured at a reasonable cost. They are not difficult to use and no exchange can well afford to be without one.

While loafing around a gang of cable splicers the other day, I overheard a hot argument between two of them regarding the merits of certain tone test sets. This argument was just about as reasonable as the average political argument, for the cable test sets of today, built by reliable manufacturers, are all good, and if properly used will all give excellent results.

Some splicers may have a preference for a certain type because they have become familiar with it, so naturally they prefer it to any other. Some splicers, I know, are careless, and when they fail to get a good location on trouble, blame the test set.

Troubles differ greatly in that some are easily located with the exploring coil, while others can be quite annoying. Sometimes I have found it impossible to get a

satisfactory location until after various hookups of the test set have been tried. I have also decided that the manufacturers will specify the best method of using their particular sets and that it will be wasted effort on my part to try to improve on it by experimenting.

If the directions specify that a particular exploring coil shall be held flat against the cable, I cannot expect to get good results by sliding the end of the coil along the cable. I have found that on aerial cable I can always get the best results by placing the coil directly on the bottom of the cable and opposite the steel suspension strand at all times.

I am also of the opinion that some men just have a better ear than others and that they are able to detect the change in tone much better than others. When the tone dies entirely as the trouble is passed with an exploring coil, anyone can find it, but when it only reduces slightly in volume, then a good ear is necessary. In all such cases though, a different hookup can generally be found which will give a more definite location on even the most difficult trouble.

Splicers' talking sets have always been the world's greatest tangle. I know one old splicer who, if he could not find anything else to growl at his helper about, would swear that his talking set was not tangled properly. These sets generally have many feet of surplus cord; and in place of test clips, a short piece of cable wire is wound around the cord at the end, which in turn is wrapped around the point of contact.

The receiver, transmitter, condenser and a few other odds and ends are generally tangled up together, and why many cablemen have not been hung in their own talking sets is more than I have ever been able to understand. However, talking sets are on the mend and no doubt within a few short years will be quite respectable.

There is now available a small, lightweight lapel type transmitter which can be attached to the coat or suspender. That is more convenient than hanging it around the neck or back of one ear and then cussing the other end of the line because one is not hearing well. There is also a new head-band receiver with a small built-in condenser which also tends to reduce the tangle.

These instruments, properly connected with a minimum amount of the proper type of cord, make a very convenient and efficient talking set of which any splicer should be proud. I will bet, though, that some of the old splicers will tangle even this set aplenty.

Cable-testing equipment in general is so much better than it was back in my splicing prime that I just cannot help but think that the cable splicers of today lead a comparatively easy life.

Busy Telephone Cables "Taken for Ride" Up 200-Foot Hillside.

The New Jersey Bell Telephone Co. recently moved eight tons of busy telephone cables 200 feet up a steep hillside in Morris county, New Jersey, without interrupting any one of the hundreds of telephone conversations passing through them. The construction of a new state highway through Denville township made it necessary to move two big cables, containing 662 busy wires, along a stretch of 1,500 feet.

The New Jersey Public Utility Information Committee states that this was one of the most unusual telephone construction jobs ever undertaken. Failure during any part of the work might have cut off Dover, Newton, Boonton, Rockaway, Hopatcong, Netcong, Hackettstown and that entire section of New Jersey from communication with the east and south. However, the job was completed without service interruption of any kind over the cable circuits.

Here and There in Telephone Work

An Eight-Point Program for 1933 Service and Sales.

In the December issue of The News, the monthly publication of employes of the Louisiana Telephone Co., Kinder, La., and the Southwest Telephone Co. and the Southwestern States Telephone Co., Dallas, Texas, is given a program for service and sales in 1933.

"In the year 1933," it is stated, "we want to dedicate our time and efforts in an endeavor to improve the quality of our services to the public through the adoption of the following 'Eight Point Program':

1. To endeavor to improve the quality of both local and long distance telephone service furnished to our subscribers. To attempt at all times to furnish a service without interruptions or difficulties which are objectionable from a service standpoint.
2. To perform and carry on our maintenance work in a prompt and efficient manner. To be alert at all times to eliminate any conditions which might cause trouble or service interruptions.
3. To enhance the value of our service by endeavoring at all times to sell new service to present telephone non-users of both the business and residence classifications.
4. To solicit the sale of auxiliary services, such as switch keys, extension sets, gongs, etc., where the sale of such auxiliary equipment will facilitate the use of and add to the convenience of the service from a telephone user's standpoint.
5. To cooperate with at all times, and to assist in every possible way, our former subscribers in working out some plan which will enable them to have their telephone service re-established.
6. To explain at every opportunity the various toll service classifications, toll rates, etc., and the various uses which can be made of long distance telephone service, in order that our subscribers may utilize the type of service which best suits their needs.
7. To cooperate fully with our fellow workers and to carry on our work at all times in an efficient way so as to eliminate errors, unnecessary costs, and to accomplish the job in the minimum amount of time.
8. To be courteous in dealing with the public at all times; to see that the company's policies are properly followed; that its rules and regulations are put into effect and to try to create a favorable impression both for ourselves and for our company in every public contact.

That's a program that every telephone employe can endorse and participate in.

Welfare and Relief Mobilization Movement of 1932.

Newton D. Baker, who was secretary of war in President Wilson's cabinet, and who has acted as chairman of the national citizen's committee of the Welfare and Relief Mobilization of 1932, sends TELEPHONY the following letter which is self-explanatory:

Mr. H. D. Fargo, President
TELEPHONY
608 South Dearborn Street
Chicago, Illinois

My Dear Mr. Fargo:

May I on behalf of the National Citizens Committee thank you as a member of the National Publishers' Association for the splendid support that you have given the Welfare and Relief Mobilization of 1932?

The wholehearted support of the association and your generous contribution have been vital factors in this movement. May I thank you personally for your splendid cooperation?

Sincerely yours,
NEWTON D. BAKER,
Chairman, National Citizens' Committee.

World's First Subscriber Bothered by "Borrowed Service."

Telephone calls for distances of 10,000 miles or more are made so frequently now that they are of only passing interest.

Fifty-five years ago, on January 28, 1878, when the first telephone central office was established at New Haven, Conn., E. A. Gesner, owner of Apothecaries' Hall and said to be the first subscriber to telephone service in the world, was amazed to learn that his voice could go by telephone a city block from his office to the central office and back to Dr. Gaylord's dental office just across the street.

On being assured that he would have no

difficulty in carrying on a conversation with Dr. Gaylord for this "long distance," Mr. Gesner gave the order for a telephone, which was installed promptly, according to The Telephone Bulletin. The instrument used was crude, resembling the present-day telephone receiver.

Customers of the druggist would timidly approach the instrument, remove it gingerly from the hook and shout into the mouthpiece. Invariably after speaking by telephone with the doctor, they would go to the door and shout across the street: "Hey, Doc, how did you like my voice over there?"

Telephone users in more than 40 countries on six continents may now speak with one another.

Inquiring Reporter Finds Home Telephone Considered a Necessity.

Each day the Inquiring Photographer of the New York Daily News asks a question and publishes pictures and answers of the half-dozen or so people to whom he puts his query. As these people are picked at random and might therefore represent a cross section of public opinion, telephone people find more than average interest in the replies to a question recently asked.

Six people on Bergenline avenue, Union City, N. J., were asked this question: "Do you consider a telephone in your home a luxury or a necessity?"

All six considered it a necessity.

Said the first one, a musician: "A necessity. There are many contracts which I get over my home telephone that would not be possible otherwise. In addition, I feel that it is only fair to have a telephone at home for the convenience of my wife. We could hardly do without it."

A millinery manufacturer answered: "The home telephone is a definite necessity. In emergencies one would be almost helpless without a telephone handy. Domestic troubles are often minimized by prompt telephone calls, and oftentimes business calls are necessary."

The reply of a floor-covering salesman was: "I consider it a necessity. There are some emergencies which make a person feel that a telephone handy at the moment is worth its cost for ten years. I might economize on many things, but never on the telephone."

A merchant replied: "A necessity. The other day our youngster had an accident, and my wife immediately notified me and a doctor. We were there almost instantly, and that one call was worth a year's cost of service. It's absolutely necessary for a wife."

An airway manager gave this answer: "The home telephone is absolutely necessary for a wife. It saves her a great deal of trouble and work and is worth more than its cost if you consider the wear and tear on a woman's nervous system if a telephone were not in the home."

The sixth man questioned, a salesman, gave this reply: "A necessity. I can speak from actual experience. We thought we would save a hundred dollars a year by cancelling our service, but after a month without a telephone and many inconveniences, we decided that it was an absolute necessity."

The Real Value of 1932.

The New Year—1933. How shall we approach it? Shall it be in fear and trembling? Or with courage and determination?

The real value of 1932 lies in the fact that its troubles, trials and disappointments have helped to develop in us those qualities which are so needful in our business. Of these qualities, there are perhaps three which are most essential to success—Concentration, Initiative and Adaptability.

Concentration, or the ability to focus the entire thought and mind upon the immediate problem and stay with it until it is solved; to be able to analyze all the various angles, separating the good from the bad and to finally coordinate all into a workable, feasible plan.

Initiative, or that magical power of being able to take the lead in bringing forth that which is new; to be able to plan new methods, to create new ideas, to set in motion new ways of doing things which will be better, easier and more economical.

Adaptability, or that happy faculty of being able to fit oneself into his or her surroundings; to be able to change with the times; to adopt new ideas, new thoughts and new methods; to get out of the rut, to shake off time-worn customs and to bring oneself up-to-date.

So let us close the books on 1932 with a sigh of relief. Let us be thankful that our industry has suffered much less than many others. Let us be happy in the knowledge that we gave it our best efforts. Let us welcome 1933 with a new courage, a new determination and a new faith in ourselves and the future of our industry.—H. E. Bradley, President, Pennsylvania State Telephone & Traffic Association.

Cut Wires in Pay Station Booths When Service Displeased.

Eric Wolthaler, 50, wholesale grocery salesman, who transacted most of his business from telephone pay stations, has been sent to the workhouse for three months on his admission that, enraged at the telephone service, he ripped out 35 telephones during the past few months. The New York Telephone Co. claimed he had severed 627 wires in telephone pay station booths.

Wolthaler told Justices Fetherston, Dale and Herbert, who imposed the sentence, that his work of obtaining orders from hotels and restaurants in the New York City midtown district began at 4 a. m. each day and that when he was talking over the telephone with customers, the operators would interrupt him with demands for more nickels or other excuses, which incensed him.

Some Telephone Things I Didn't Know Until Now.

By Oscar Will Tell.

That in the Bell System ladders are a contributing cause in approximately 5 per cent of all lost-time accidents.

That telephone subscribers in the United States can now talk to any of 15 different ships at sea.

That an average of 3,000,000 toll telephone conversations take place daily over Bell System lines.

That special wiping cloths are now available for splicers to use in wiping vertical joints.

That 40 years ago, on October 18, 1892, telephone service was inaugurated between New York and Chicago.

That after some 40 years of service, spirally-wrapped paper insulation is rapidly being displaced for inter-office and subscribers' loop cables by a pulp insulation applied directly to the conductors by a special process.

That the Chesapeake & Potomac Telephone Co., of Washington, D. C., established a record in installing a telephone for the press at the hunger marchers' camp, in early December, in less than one hour.

That a telephone central office with 10,500 subscribers' lines provides 55,119,750 possible channels of intercommunication within that office.

That the United States Department of Commerce uses many teletypewriter circuits for the transmission of weather reports along the aviation routes throughout the country.

That communication in forest fire protection is carried on by telephone—and, within the last few years, it is also being done by radio.

That the approximate number of miles of telephone lines maintained in the national forest areas is 40,000 miles.

That an order for 435 trucks, costing some $1,500,000, was recently received by the White Motor Co. in Cleveland, Ohio, over long distance telephone from the United States government in Washington.

The Index for Volume 103 of "Telephony" Now Ready.

The index for Volume 103 of "Telephony," which was completed with the issue of December 31, 1932, is now ready for distribution among those who keep complete files.

In this index are listed all of the important articles which have appeared between July 2 and December 31. It will be supplied free of charge to those making application.

What the Commissions Are Doing

Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

State Commissions Refused Extension on Uniform Accounting.

Despite the opposition of five states, the Interstate Commerce Commission on December 29 refused to extend the date for putting its new uniform system of telephone accounting in operation on January 1, 1933, but permitted reopening of the proceedings so that changes might be made after due hearing.

The state commissions of New York, Missouri, Oklahoma, Pennsylvania, and Wisconsin advised the Interstate commission that its new accounting system was "defective in vital respects," and would interfere with proper regulation of telephone companies in those states.

The commission's notice follows in full text:

On November 12, 1932, division 4 of the commission adopted a revised Uniform System of Accounts of Telephone Companies, to become effective January 1, 1933. This revision was made necessary by the outstanding order of the commission with respect to accounting for depreciation, and by the need which experience had shown for improvement of the existing classification in other respects.

In accordance with the practice which has always been followed by the commission in preparing accounting classifications, tentative drafts of the revision were sent to all state regulating commissions, to the telephone companies, and to others who might be interested, together with a request for comments and criticisms. So far as such comments and criticisms were offered, they were carefully considered, and full opportunity was afforded for conferences with representatives of the commission's bureau of accounts.

The commission is now in receipt, however, of communications from the state commission of New York, Missouri, Oklahoma, Pennsylvania and Wisconsin, alleging that the new system of accounts is defective in vital respects and that it will interfere with proper regulation of the telephone companies in those states, and requesting that the effective date of the new system be suspended pending a public hearing.

In view of the outstanding order of the commission with respect to depreciation accounting and the preparations which have been made by the telephone companies for installing the new system of accounts, the commission has not seen fit to suspend the effective date, especially since that would cause a delay of at least a year.

However, the matter has been reopened in order that the state commissions may be afforded the hearing which they desire, at a time and place hereafter to be fixed in accordance with their convenience. Any changes which are made as a result of this hearing will be made effective as of January 1, 1933, and provisions made for restating the accounts therewith.

State May Defend Orders in State or Federal Courts.

Recognition by Federal Judge Ferdinand A. Geiger at Milwaukee, Wis., of the validity of Wisconsin's 1931 statute which it is believed will henceforth prevent direct appeal from the Wisconsin Public Service Commission orders into federal courts is a development of extreme importance in Wisconsin's plan for regulation of public utilities.

Recently the Mondovi Telephone Co. and the Neshonoc Light & Power Co. appealed to the federal courts for injunctions restraining the commission from enforcing its orders for rate reductions. Circuit Judge A. G. Zimmerman, at the request of the commission, issued an order commanding the federal court to desist from action in these cases.

The two companies sought to restrain the enforcement of rate reductions orders by the commission. Before a hearing date was set in federal court, however, the commission, through its special counsel, Alvin C. Reis, filed suit in the Dane county court to enforce its orders. A stay of proceedings in federal court, ordered by Judge A. G. Zimmerman, was subsequently honored by Judge F. A. Geiger of the United States district court.

The action means that the validity of the rate reduction orders will be determined in the state courts and, if carried to an ultimate test, will go from the Wisconsin Supreme Court directly to the United States Supreme Court. There is only one contingency, attorneys pointed out, under which the case can get back into the federal district court.

Judge Geiger's order providing that all proceedings in the federal court "shall be stayed pending the final determination of such suit in the courts of the state," contained the reservation that "this stay may be vacated upon proof made after hearing and notice of 10 days served upon defendants herein, that the suit in the state courts is not being prosecuted with diligence and good faith."

While the federal court thus does not finally relinquish jurisdiction, the Mondovi and Neshonoc cases are not likely to go farther than their present status in that tribunal, attorneys declared.

Since 1913, Mr. Reis pointed out, the United States judicial code has contained a provision enabling state commissions, when an action to enjoin their orders has been brought and before a hearing has been held in federal court, to obtain stays of proceedings through the state court.

Until 1931, Wisconsin never had a statute enabling it to take advantage of this provision, Mr. Reis explained. Legality of orders was tested only through prosecutions for failure to comply. Section 285.06, however, enacted by the last legislature, enables the public service commission and other departments to file suits in the Dane county circuit court to have their orders placed in force.

This new law has not yet been subjected to a legal test.

The precedent set in the Mondovi and Neshonoc cases will not affect the procedure already under way in federal court in the Wisconsin Telephone Co. injunction suit against the public service commission.

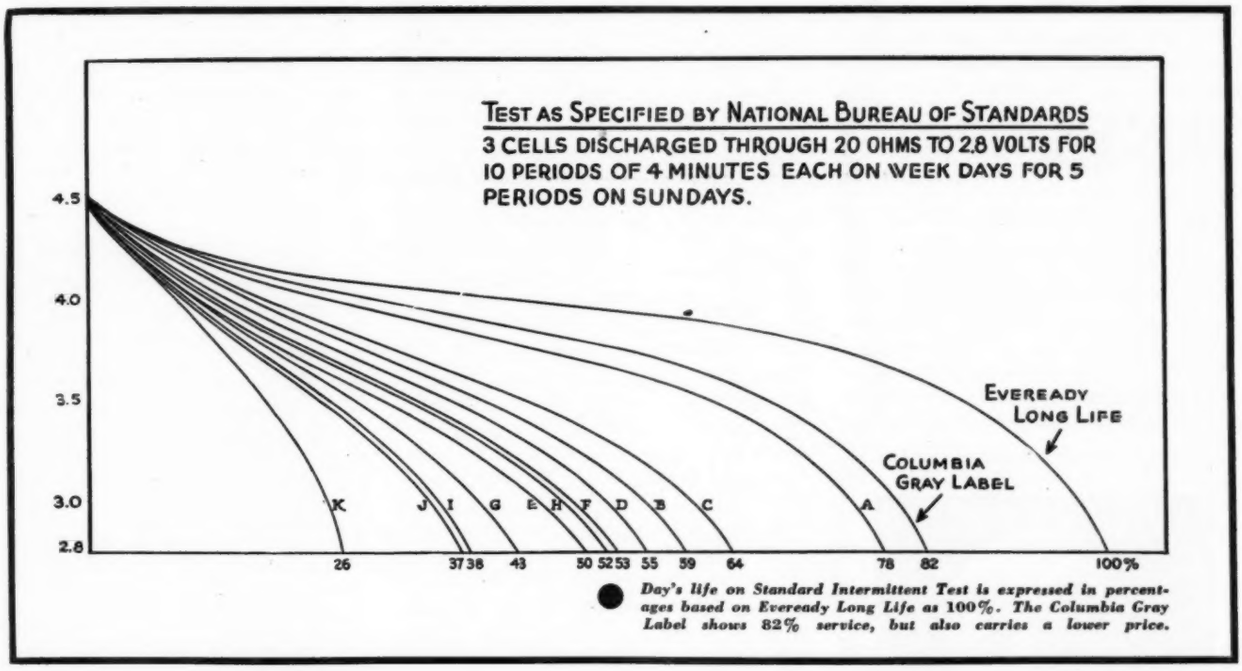
Boston, Mass., Rate Hearing Covers Dial Operations.

The New England Telephone & Telegraph Co. lost $824,231.02 annually in the transition from manual central offices to machine central offices, Wycliffe C. Marshall, of Watertown, Mass., counsel for the Boston Central Labor Union in its fight for a reduction in telephone rates, declared at a resumed hearing on December 14 before the Massachusetts Department of Public Utilities.

The loss reported by Mr. Marshall was computed through the application of fixed charges, totalling $2,385,847, to the increased investment resulting from the dial system development. The December 14 hearing was enlivened by frequent clashes between Mr. Marshall and George R. Grant, general counsel of the New England Telephone & Telegraph Co., during which the latter scored the labor organization's representative for "lack of knowledge of the telephone business."

Mr. Grant charged that Mr. Marshall, in calling the commission's attention to reductions in personnel, "did not want to remember" the increased number of employes hired to install the dial apparatus. Mr. Marshall introduced figures, which, he said, indicated that as a result of the change from the manual to machine switching the company "was not obliged to employed between 3,276 and 5,972 employes."

(*Please turn to page 38.*)


TEST AS SPECIFIED BY NATIONAL BUREAU OF STANDARDS
3 CELLS DISCHARGED THROUGH 20 OHMS TO 2.8 VOLTS FOR 10 PERIODS OF 4 MINUTES EACH ON WEEK DAYS FOR 5 PERIODS ON SUNDAYS.
4.5
4.0
3.5
3.0
2.8
EVEREADY LONG LIFE
COLUMBIA GRAY LABEL
K J I G E H F D B C A
26 37 38 43 50 52 53 55 59 64 78 82 100%

Day's life on Standard Intermittent Test is expressed in percentages based on Eveready Long Life as 100%. The Columbia Gray Label shows 82% service, but also carries a lower price.

UP GOES EFFICIENCY

... DOWN

GO TELEPHONE OPERATING COSTS WITH THESE LOW-PRICED, LONGER-LIVED, ALL-ARMORED BATTERIES

"DOLLARS saved are dollars earned," is today's reborn business maxim. Through increased serviceability, longer life, greater purchasing economy, every item of maintenance must help to replace dollars lost through diminished revenue.

Columbia Gray Label and Eveready Long Life Batteries set a high example. (1) At low prices. (2) Through longer life than has ever been achieved in products of their kind, they increase telephone-service efficiency; reduce interruptions, complaints, servicing expense — and labor costs due to less frequent replacement.

Huge, waste-eliminating production by the largest dry-battery manufacturer in the world makes the first-mentioned economy possible. All-armored and other superior construction features are responsible for the second. Better customer satisfaction and lower operating cost-per-day are the cumulative result of using either of these two outstanding telephone dry cells.

NATIONAL CARBON COMPANY, INC.

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Branches: **Chicago New York San Francisco**

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Personal Notes from the Field

Col. Sir Thomas F. Purves, O. B. E., London, England, engineer-in-chief of the British General Post Office, retired from that position on November 30.

Sir Thomas Purves entered the civil service by open competition in 1889, and was transferred to the engineering department of the Post Office in 1892. He was appointed technical officer on the headquarters staff in 1900, assistant superintending engineer in 1905, staff engineer in 1907, assistant engineer-in-chief in 1919, and engineer-in-chief in June, 1922.

During the war he served as major in the Royal Engineers, and at the conclusion was awarded the Military O. B. E. and was

Colonel Sir Thomas F. Purves Has Retired as Engineer-in-Chief of the British General Post Office. He Was in the Post Office Service for 43 Years, the Last Ten as Engineer-in-Chief.

appointed honorary colonel of the 14th (London & Home Counties) Division of the Royal Corps of Signals, a position from which he retired in 1928.

He was awarded a knighthood in 1929, and in the same year was elected president of the Institution of Electrical Engineers. On retiring from the presidency of the I. E. E. he was appointed chairman of the Engineering Joint Council, a body set up in 1922 by the Institutions of Civil, Electrical and Mechanical Engineers and the Institution of Naval Architects in order to govern and co-ordinate the joint action and interest of the British engineering profession at home and abroad.

The development of the thermionic valve and other devices resulted in the possibility, on the conclusion of the war, of a European telephone network. Sir Thomas played an important part in the development of telephony in its international aspects, persuading the German Administration to send delegates to the first real international telephone conference held in 1924.

During his period of office as engineer-in-chief, he was called upon to make a decision which determined the future of automatic telephony in Great Britain, and was responsible for the adoption of the Strowger step-by-step system. His paper presented before the Institution of Electrical Engineers on the subject, "The Post Office and Automatic Telephones," was published in TELEPHONY in July and August, 1925. It gave the experiences and conclusions of the Post Office in its investigation of different types of telephone apparatus.

He held the position of engineer-in-chief to the Post Office for a longer period than any of his predecessors during the past 50 years, and has been in control of the engineering department throughout a time of unparalleled technical progress.

At the time of his appointment in 1922 he prophesied that the ensuing ten years would see many remarkable developments, including full intercommunication between the telephone systems of Great Britain and the United States, all of which were duly accomplished. He has been president of the Institution of Post Office Electrical Engineers since 1922.

Col. Sir Thomas Purves was born in Blackadder, Scotland, December 31, 1871. He was educated at Duns Academy, Berwickshire, Heriott Watt College, and Edinburgh University.

Lt.-Col. A. G. Lee, O.B.E., M.C., the new engineer-in-chief of the British General Post Office, served with the Royal Engineers in France during the war, finishing up as officer in command, G.H.Q., signal area. After the war he took up radio work and played a prominent part in the development of the wireless station at Rugby, England.

After this he assisted in the development of international wireless telephony, which commenced with the New York-London telephone service and has since grown to vast dimensions as a world-wide telephone network with the Dominions. For the last few years he has been responsible for the technical direction of the telephone and telegraph services in addition to wireless.

He has been leader of the British delegations at several international radio conferences. In 1928 he was appointed chairman of the Radio Research Board, a post to which he brought considerable knowledge of the practical requirements of radio as well as intimate contact with research methods.

In 1929, in recognition of his activities in the technical field of wireless, he was elected vice-president of the Institute of Radio Engineers of America. He was elected chairman of the wireless section of the Institution of Electrical Engineers in 1927 and has been a member of the Council since 1931.

Obituary.

Mrs. H. D. Fargo, Sr., of Chicago, passed away on December 27 following a brief illness with influenza. Mrs. Fargo was well known in women's golf circles and held the women's championship of the Edgewater Golf Club for six years. She also was chairman of the women's committee of the North Shore Golf Club in 1932, and had been reelected for the season of 1933.

Mrs. Fargo is survived by her husband, and her son, H. D. Fargo, Jr., respectively president and vice-president and advertising manager of TELEPHONY.

John J. Carty, aged 71, pioneer in the development of the telephone art since its early days and former vice-president of the American Telephone & Telegraph Co., died on December 27 at Johns Hopkins Hospital, Baltimore, Md.

Born in Cambridge, Mass. on April 14, 1861, John J. Carty completed a course in the Cambridge Latin School and in 1879 began his telephone career, three years after the telephone's invention, when he entered the employ of the Telephone Dispatch Co. of Boston.

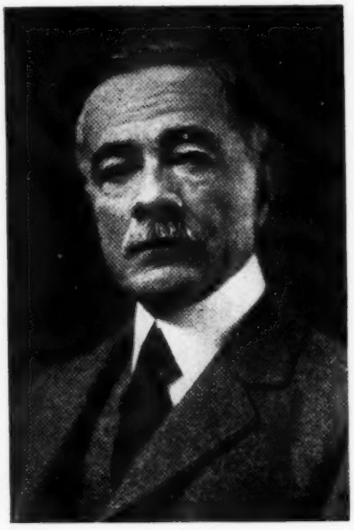
His natural ability and his fondness for scientific investigation made his development rapid, and he soon began to make the first of a long series of valuable contributions to the advancement of the telephone art. Among these was the invention of a test system for multiple switchboards and the first metallic circuit multiple switchboard. Indeed, he was among the first to suggest the practice, now general in telephone work, of using the metallic circuit, as distinguished from a single wire, grounded circuit then used in telegraph transmission.

Transferred to New York in 1887, the young engineer was placed in charge of the cable manufacturing of the Western Electric Co. in the East, and later of switchboard development and manufacture. In 1889 he entered the employ of the Metropolitan Telephone & Telegraph Co. (now the New York Telephone Co.), and shortly afterward became chief engineer.

He was associated with the New York Telephone Co. until 1907, when he became chief engineer of the American Telephone & Telegraph Co., in which capacity he served until 1919 when he was elected a vice-president of the company in charge

of the department of development and research. In 1923 he was also elected chairman of the board of directors of the Bell Telephone Laboratories. General Carty retired from active participation in telephone work in 1930.

One of the many inventions which General Carty contributed to the development of the telephone—in addition to those which had to do with the evolution of the



General John J. Carty, Celebrated Telephone Engineer, Who Retired From the Bell System in 1930 After 51 Years of Active Service in Telephone Work, Passed Away in Baltimore Last Week.

common battery switchboard, now universally employed where manual switching is used—is the so-called bridging bell which forms an essential part in all farmers' telephone lines and has played an important role in rural telephone development.

Many important engineering problems confronted General Carty during the years while he served as chief engineer of the American Telephone & Telegraph Co. Perhaps the most notable of these was the completion in 1915 of the transcontinental telephone line which made possible the first transmission of speech between the Atlantic and Pacific coasts and thus achieved a dream which Mr. Carty himself had long cherished—nation-wide telephone service.

Shortly after this achievement was announced, engineers working under his direction accomplished the first successful transmission of speech by radiotelephone from New York to San Francisco, to the Hawaiian Islands, to the Canal Zone and to Paris—the pioneer efforts in the development of a system of radiotelephone facilities which now are practically world-wide in their reach.

When the United States entered the World War in 1917, Mr. Carty was a major in the Signal Reserve Corps, United States Army, having been the first officer commissioned in this reserve, which was organized in 1916. He left the service at the close of the war with the rank of colonel.

Under the direction of the War Department and in cooperation with the various companies of the Bell System, he organized 12 battalions of Signal Corps troops and in France served on the staff of the Chief Signal Officer of the A. E. F. In this capacity he designed a telephone and telegraph system for the American army in France, and after the Armistice he was signal officer in charge of the communication work of the American Commission to Negotiate Peace. He was promoted to the rank of Brigadier-General in the reserve corps in 1921.

In recognition of his war services he was decorated in France by General Pershing with the Distinguished Service Medal and received from the French military authorities a citation of thanks and the Cross of the Legion of Honor.

General Carty also received from the Emperor of Japan the decoration of the Imperial Order of the Rising Sun and the Order of the Sacred Treasurer. Twice the Imperial government of Japan tendered him its formal thanks for his service in the development of the Japanese telephone system.

Scientific and engineering awards which have been granted to General Carty included the Edward Longstreth medal, 1903; Franklin medal for eminent service in science, 1916; Edison medal for "work in the science and art of telephone engineering," 1916; the John Fritz gold medal, "for pioneer achievement in telephone engineering and in the development of scientific research in the telephone art," 1928.

Among the honorary academic degrees held by General Carty were the degree of doctor of engineering, Stevens Institute of Technology; doctor of science from Yale, Princeton, New York University, the University of Chicago, Bowdoin and Tufts; doctor of laws from McGill University and the University of Pennsylvania.

General Carty was a trustee of the Carnegie Institution at Washington, past chairman of the executive board of the National Research Council, and a member of the National Academy of Sciences; a fellow of the American Academy of Arts and Sciences, a fellow of the New York Academy of Sciences, a fellow of the American Institute of Electrical Engineers, of which he was past president; past president of the New York Electrical Society; a member of the Society for the Promotion of Electrical Education, of the American Physical Society, of the Franklin Institute, of the American Association for the Advancement of Science, and of the American Geographical Society and National Society for the Promotion of Industrial Education.

General Carty was married in 1891 to Marion Mount Russell, who survives him with one son, Dr. John Russell Carty.

PERCENTS AND PERDOLLARS

Cents for Batteries.

Dollars for replacements.

Which deserves most careful observation?

GENERAL STORM KING DURO POWR Telephone Batteries are outperforming all others in side-by-side tests.

Don't bother about the exclusive construction details but look at the facts and

DO THIS FOR PROOF

Hook up a STORM KING DURO POWR with ANY other cell. Date both. When replacement is needed, test each cell. If STORM KING is not alive and ready for extra service, we will refund its cost.

GENERAL DRY BATTERIES
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CLEVELAND, O.

General Dry Batteries of Canada, Ltd., Toronto, Canada
Makers of all types of dependable Dry Batteries for Radio, Ignition, Flashlight and General Use.

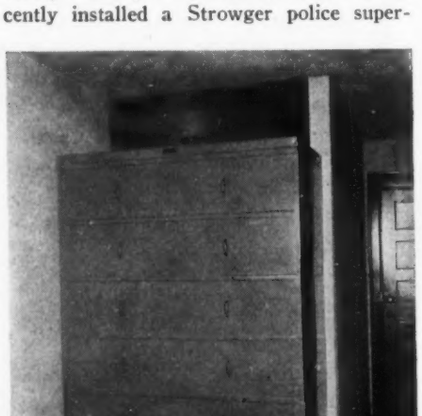
New Police System at Middletown, Ohio

Activities of City's Entire Police Organization Coordinated by Means of the New Police Supervisory and Recall System—Instant Telephone Communication Provided Between Headquarters and All Parts of City Over Special Police Wires

By H. S. Williams,

Assistant Sales Manager, American Automatic Electric Sales Co., Chicago, Ill.

With a view to providing its police officials with modern means for supervising and coordinating the activities of their force, the city of Middletown, Ohio, recently installed a Strowger police supervisory and recall system. Although this system has been on the market but a short time, it has already been adopted and installed by the following cities: Vancouver, British Columbia, Can.; Newark, Ohio; Michigan City, Ind., and Middletown, Ohio.



The Neat, Sectional-Type Cabinet Housing the Headquarters Equipment for the Strowger Police Supervisory System Recently Installed at Middletown, Ohio.

The Strowger police supervisory system installed at Middletown, Ohio, consists initially of 21 patrol boxes located at strategic points throughout the city. Provision is made in the headquarters equipment so that considerable expansion in the number of patrol boxes can be made when desired, at a minimum expense for additional apparatus.

Each patrol box is connected directly to the headquarters equipment by means of its own pair of small copper wires, thereby eliminating the necessity for coding equipment in the patrol box to identify at headquarters the box operated. Instead, the switchboard at headquarters contains a lamp for each line, and a glowing lamp instantly indicates which box is being operated.

This single pair of wires to each patrol box also does away with the possibility of interference when two boxes are operated simultaneously, which can occur where more than one box is connected to a line. Another advantage of this arrangement is that any trouble which might happen to a line affects that one patrol box only, and any such trouble is easily cleared because the exact line which is in trouble is indicated.

The fact that no coding apparatus is necessary in any of the boxes permits simple and sturdy construction, thus minimizing maintenance expense. The outside cabling is the same high-class type of construction as that used for public telephone plants, and also has the advantage of being familiar to anyone acquainted with telephone practice.

At Middletown when a patrolman wishes to make his regular report, he opens the door of the patrol box (using the left-hand keyhole) and lifts the Monophone handset from its cradle. This instantly registers the time and box number on the recorder at headquarters. This record is printed automatically by the recorder on a large sheet of paper, which can be filed for future reference. This record is more easily read than a tape record, and also is easier to file without mutilation.

Simultaneously with this operation, which is entirely automatic, the line lamp glows at the headquarters switchboard. The supervisor at this board can talk with the patrolman, should he so desire, by merely operating an associated "answering" key.

Officer in Middletown, Ohio, in Calling Police Headquarters, Illustrates the Convenience of the Monophone Handset, Used in the Strowger Police Supervisory System.

The Switchboard Attendant at Headquarters Has Communication Facilities to Every Patrol Box in the City of Middletown, Ohio. The Automatic Recorder Can Be Seen in the Background.

If the supervisor should wish to talk with the patrolman to give him directions or special information and the patrolman hangs up before receiving the information, the supervisor can call him back by ringing out on the line immediately, thus operating a bell or lamp signal at the patrol box.

Conversely, if the patrolman wishes to speak to the supervisor, he keeps the Monophone handset off the cradle, thus causing the associated lamp on the headquarters switchboard to continue to glow until the supervisor answers. He can then talk with any of the official telephones connected to the board or can be transferred to any of the other patrol boxes throughout the city with which he might wish to be connected in order to obtain or give information direct to other officers.

Emphasis in this system is placed on communication—direct telephonic conversation rather than on signals, codes, etc.—since it is apparent that for both speed and complete understanding direct conversation is obviously the preferred method. To insure complete reliability in this respect, all telephone instruments used in the Strowger police supervisory system are of the efficient Monophone type, identical with those manufactured for public exchange use, except that the transmitter is waterproof and is supplied with rubber-covered waterproof cord.

These modern handset instruments are easy and convenient to use, and it is not necessary to put one's head inside the box to telephone. This feature is highly appreciated by any police officer who has tried to place a telephone call while retaining control of an unruly person.

The use of signals, however, is often necessary, and complete provision for their utmost utilization has been made in the Strowger police supervisory system. In the case of a patrolman occupied with an unruly person, he might wish to call a patrol wagon without having to unlock the box and telephone his request. In this case, he merely inserts his key in the right-hand keyhole of the patrol box.

This action causes the associated line lamp on the headquarters switchboard to flash continuously, giving a distinctive signal which the supervisor instantly recognizes as a "wagon call." He acknowledges the call by ringing back on the line, which indicates to the patrolman that his signal has been received, and that a patrol wagon is being dispatched immediately.

Each patrol box has associated with it either an audible or a visual signal, or perhaps both, for the purpose of attracting patrolmen, squads or motorcycle police who may be in the vicinity. The supervisor at headquarters can send out such signals to any number of boxes simultaneously, by operating the "recall keys" associated with the boxes he wishes to signal.

He then dials the code he wishes to transmit, which causes an automatic coding machine (located at headquarters and having a capacity of 90 different codes) to send out the desired code over and over again to these patrol boxes. This is the "recall" feature of the system, and naturally it has an important part in the control and signaling of squads and individual policemen in cases of emergency.

The headquarters equipment at Middletown is shown in the accompanying illustrations. It consists of a turret-type switchboard, in this case mounted on an ordinary desk. The report recorder, enclosed in a glass-windowed case, is mounted on a separate stand. The switching equipment is contained in a neat, sectional-type cabinet, where it is protected from dust and tampering.

The system at Middletown is a centralized type for cities having one police headquarters; but for larger cities having more than one police station, there can be several switchboards. Each switchboard would be independent of the others, but interconnected for unified control and communication between districts.

Telephone executives will find the Strowger police supervisory system interesting not only because of its application of communication and signaling principles to police control, but also because of the commercial possibilities it opens up for the utilization of already existing telephone company local exchange cable plant.

Answers to the Traffic Questions Presented on Page 14.

1. If, when you are ready on a call you receive a report that the calling party is out, you proceed in general in the same manner as when you receive a report that the called party is out. Try to find out when the calling party will be there. You try to reach the calling party again in accordance with the report received.
2. This question is answered in the introduction to the questions and answers.
3. At the first interval of waiting. However, if overlap recording is used, the call may be advanced to the point where you have passed the call before the calling party's number is secured.
4. When either the calling or called party asks to have a message repeated, the call is referred to the supervisor or chief operator. She should make certain that no connection can be secured on which the parties can talk satisfactorily themselves. If the party making the request is not the one to whom the message is to be charged, she asks the other party if he wishes to have the message repeated. If he wishes it repeated she advises him, "if the message is repeated the company will not assume liability for error." If he does not object to this condition, the supervisor or chief operator arranges to have the message repeated at an office at which both parties can be heard satisfactorily. If this procedure is followed, the company will not be responsible for any error. I am sure you will find this a more satisfactory procedure for handling conditions of this kind.
5. If the operator is satisfied that the calling party wishes person-to-person service on the call this question should not be asked. It is a waste of time; it may be annoying to the customer and suggests to him to place a station-to-station call.

Lincoln (Neb.) Company Amends Employes' Benefit Plan.

The Lincoln Telephone & Telegraph Co., Lincoln, Neb., has announced an amendment to its employes' benefit plan, entirely in the interest of the employe.

The change gives the employe whose service record has been interrupted, the right to have every break in the continuity of, or absence from, the service (other than absence during a period of disability benefits or leave of absence or temporary layoff) considered as a leave of absence, upon completion by the employe of ten years of continuous service after the termination of such absence.

It is provided, however, that this provision shall not extend to any absence from the service which occurs before the employe has completed an initial six months' continuous service record. This means that the period of interrupted employment, where he returns and serves ten years will be added to his record. No bridging of service with other companies can be made prior to February 1.

National Capitol Police Handle Over 3,000 Calls Daily.

Statistics for the fiscal year recently made public by the Washington, D. C., police department show how important is adequate telephone communication to the police and to the people they serve.

Approximately 1,140,625 telephone calls were handled over the police department switchboard. This is an average of 3,125 calls a day. A total of 23,911 emergency calls were received, asking for police assistance, ambulances, or fire apparatus. In addition, 7,867 incidental calls came regarding ill and injured persons to whom assistance was rendered.

The teletypewriter system recorded 23,494 messages received and transmitted, and in addition there were 12,775 "flash" messages, consisting of inquiries and matters requiring immediate attention, thus making a total of 36,269 typed dispatches.

The police department was one of the first subscribers to telephone service in the city of Washington. As early as 1878, all of the police stations in the city were equipped with telephones.

Material	Dielectric Power
Air	1.0
Paper	1.5
Paraffin	1.6 to 2.3
Beeswax	1.8
Resin	1.8 to 2.5
Shellac	2.7 to 3.6
Glass	3.1
Mica	4.0 to 8.0
Porcelain	4.4
Flint glass (double extradense)	10.1

DIELECTRIC POWER OF VARIOUS MATERIALS.

The man in the field is but little concerned with the dielectric power of the insulating material in the condensers with which he works. He is, however, concerned with the "dielectric strength" of the insulating medium. "Dielectric strength" refers to the ability of an insulating material to resist puncturing or breakdown from the voltage *stress* existing between the two metallic plates.

If a condenser is used on a circuit of high-voltage rating—higher than it is designed for—the potential stress may be sufficient to cause a spark to jump through the insulating material between plates and result in permanent damage to the condenser. The dielectric strength of condensers is, therefore, usually rated by the manufacturer in terms of the maximum safe voltage which the condenser will stand.

Equations Dealing with Condensers.

The following equations are of interest in connection with a discussion on condensers. Of these equations, the first two are of only theoretical interest and have but little practical application. The other three equations should be remembered as they are exceptionally useful in practical work.

Equation No. 1: $Q = CE$

In this equation Q = Coulombs (1 Coulomb = 1 amp. × 1 second); C = Capacity in farads; and E = Potential in volts. The equation shows that the quantity of electricity that a condenser can store is proportional to the product of the capacity of the condenser and the voltage of the applied source.

Equation No. 2: $W = \frac{CE^2}{2}$, where W = Power in watt seconds.

This equation states that the energy which can be stored in a condenser is proportional to the product of the voltage squared, times the capacity divided by 2. Inasmuch as condensers are seldom used as true power storage devices, this equation is of little practical use. It is interesting to note

the potential energy that a 1.0 mf. telephone condenser would hold if charged by a 1.5 volt dry cell; i. e.,

$$W = \frac{CE^2}{2} = \frac{.000001 \times 1.5^2}{2} = .00001125 \text{ watt seconds.}$$

Equation No. 3: The total capacity of a number of individual condensers connected in parallel is equal to the sum of their separate capacities; i. e., $C_t = C_1 + C_2 + C_3 + C_4$, etc. This equation should be remembered for occasions often arise where it is necessary to obtain a given capacity, and condensers of the right capacity may not be available. It should be noted that the equation for computing the total capacity of condensers in parallel is the same as the one for resistances in series.

Equation No. 4: The total capacity of a number of condensers in series is equal to the reciprocal of the sum of the separate reciprocals of the individual capacities, i. e.,

$$C_1 = \frac{1}{\frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} + \frac{1}{C_4}}, \text{ etc.}$$

If all of the condensers in series are of the same value, then the total capacity can be found by dividing the capacity of a single condenser by the total number of condensers.

Like equation No. 3 this equation is quite useful.

Equation No. 5: The reactance in ohms of a condenser is computed by the following equation:

$X_c = \frac{1}{2\pi fc}$, where $\pi = 3.1416$; c = Farads; f = Frequency in cycles; and X_c = resistance in ohms.

This equation is indispensable to a telephone man in that it shows him what the effect of a condenser in a given circuit to currents of various frequencies will be. For example, using the foregoing formula, the reactance of the 0.5 mf. non-ring through condenser placed in series with the receiver of most rural line telephones, can be readily computed for both voice and ringing currents, thus giving an idea of why it is used.

$$X_{c_{20}} = \frac{1}{2\pi fc} = \frac{1}{6.28 \times 20 \times .0000005} = 15{,}900 \text{ ohms}$$

for 20-cycle ringing current.

$$X_{c_{1000}} = \frac{1}{2\pi fc} = \frac{1}{6.28 \times 1000 \times .0000005} = 323 \text{ ohms}$$

for 1000-cycle voice current.

In working with condensers it is sometimes necessary to use a condenser across a circuit whose voltage is higher than that for which the condensers available are designed. It is practical in such cases to connect the available con-

densers in series; and if they are of the same capacity, the total voltage of the circuit on which they are used will distribute itself equally over each condenser, thus permitting low-voltage condensers on high-voltage circuits.

In case the capacity of several condensers connected in series is lower than desired, additional series groups can be used in a series-parallel connection, thus increasing the total capacity. The Fig. 2 illustrates how a series-parallel group of condensers could be connected to provide a total capacity of 2.0 mf. across a 500-volt circuit with the voltage across each condenser limited to 250 volts.

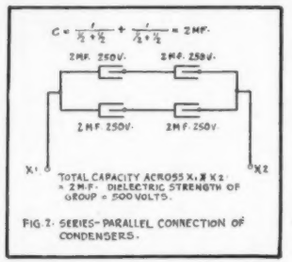


FIG. 2. SERIES-PARALLEL CONNECTION OF CONDENSERS.

If the insulation resistances of condensers connected in series are not the same, the voltage distribution across the condensers will be affected somewhat. In some cases use is, therefore, made of a high resistance shunted across each condenser as it has been found that this tends to minimize unequal voltage distribution.

Uses of Condensers in Telephone Circuits.

Some of the most important uses of the condenser in telephone systems are shown in the Fig. 3.

Fig. 3-A shows how a low-capacity condenser is placed in series with the receiver circuit in rural line telephones in order to prevent eavesdropping subscribers from interference with signaling on the line. Either an 0.5 or 0.7 mf. condenser will serve. As previously pointed out, an 0.5 mf. condenser will offer an impedance of 15,900 ohms to 20-cycle ringing currents and only 323 ohms to 1000-cycle voice currents. Hence, it prevents the relatively low-resistance receiver of the eavesdropper's substation set from sapping the line of ringing current, yet introduces only slight receiving loss.

Fig. 3-B illustrates the use of the condenser in the ringer circuit of a common battery telephone. Here it serves to bar the path of direct current through the ringer, yet readily permits the alternating ringing current to pass through and operate the ringer. For this purpose, condensers having capacities of either 1.0 or 2.0 mf. are generally used.

In common battery substation sets the condenser makes possible the high efficiency booster talking circuit as shown in Fig. 3-B. This circuit depends on the charging and discharging effect of a condenser to reinforce and "boost" the voltage variations resulting from the varying resistance of the transmitter. The booster talking circuit is the most efficient of the many common battery substation set circuits, and is now practically standard throughout the world.

WHAT THE COURTS AND COMMISSIONS ARE DOING.

(*Continued from page 26.*)

Testimony by Mr. Marshall as to the "density of traffic," during a discussion of the efficiency of dial operations, was objected to by Mr. Grant on the ground that his opponent was not "competent to discuss the question and was talking beyond his knowledge." Mr. Marshall was attempting to show that the dial system is not as efficient as it was expected to be.

Testimony Concluded in Ohio Bell Telephone Co. Rate Case.

The eight-year old rate case of the Ohio Bell Telephone Co. before the Ohio Public Utilities Commission was closed Friday, December 30, so far as evidence was concerned. Final witnesses were heard, after which the state and the company were instructed to file briefs.

The final witness was A. F. Wilson, of Cleveland, assistant vice-president of the Ohio Bell company, who testified that dial telephones were placed in service just in time to save subscribers higher rates. He stated that dial systems could be maintained at 25 per cent less cost to the company than manual telephones.

Frank Geiger, member of the commission, asked Mr. Wilson if these savings to the company were passed along to the subscribers. Mr. Wilson replied in the negative, explaining that had the dial telephones not allowed the company to cut operating costs, the need for new manual equipment throughout the state would have made higher rates necessary.

Thomas J. Herbert, assistant attorney general, asserted subscribers in many cases received no benefit from the change. He further stated the Akron exchange went into the 1920 appraisal of the company at 90 per cent of the new value. He contended the depreciation rate was too high. He charged that the cycle of replacements of manual equipment with dial equipment in the last 10 years was far in excess of normal.

Mr. Herbert claimed that the company

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had offered evidence that it had scrapped manual plants which had been carried at a high rate of appraisement in 1925.

Mr. Herbert indicated the state would submit its brief by January 9. W. H. Thompson of Indianapolis, Ind., and Karl Burr, of Columbus, attorneys for the company, said they would have their reply brief ready for submission as soon as possible after the state brief was filed.

Increased rates, effected eight years ago, are being collected under bond pending the commission's final decision, which is expected to be given at an early date.

Application to Build Toll Line Into Motley, Minn., Denied.

The application of the Cass County Mutual Telephone Co., which operates about 50 rural stations in the vicinity of Leader, Minn., requesting authority to run a toll wire from its switch at Leader into Motley in order that subscribers might call direct, has been denied by the Minnesota Railroad & Warehouse Commission.

The Cass County company has a toll line which extends into Staples, about 18 miles away, where it connects with the Northwestern Bell Telephone Co. It has an agreement with the Northwestern Bell company to switch certain of its subscribers connected directly with the toll line or on a party line terminating at Staples, for the sum of $4.20 per station per year.

A commission is received from the Bell company on all toll messages originating on its system and going out over the Bell company's toll lines. Incoming toll messages are pro-rated on the basis of the miles of toll circuit of each company used in completing the connection.

The application filed by the Cass County company sought a similar contact with the Motley Telephone Co., Motley, Minn. A flat rate per year is now paid to the Motley company for switching service. Under the proposed application, the Cass County company asked authority to extend a toll line into Motley, the Motley company to collect from local subscribers for all messages going out over the line to subscribers of the Cass County company. The latter would have free use of the line into Motley with the exception of any subscriber that might be connected directly to the toll line, for which a regular service station switching charge would be paid.

The commission in its decision held the exsiting connection between the Cass County company's lines and the Northwestern Bell company's exchange at Staples, renders a complete and adequate toll service at all times to this territory.

It held that a toll line connecting the lines of the Cass County company with the local exchange of the Motley company is not a public convenience as both localities are now adequately served by the Northwestern Bell Telephone Co.

It was pointed out that the existing agreement between the Cass County company and the Northwestern Bell company, pertaining to the connection of toll lines, is not applicable to the Motley Telephone Co. as the latter company does not own or operate a toll line system. Accordingly, the application of the Cass County company was denied in an order issued on December 19.

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are being used by Telephone and Power and Light Companies in construction and maintenance work, changing insulators on tower lines, for pulling guys, messengers, underground cables, laying water and gas mains, or wherever a lift or pull is needed. Can be used in any position. Sizes from ¾ to 6 ton, wt. from 14 to 65 lbs. Model A ¾ ton. Model F 1½ ton.

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The Index for Volume 103 of "Telephony" Now Ready.

The index for Volume 103 of "Telephony," which was completed with the issue of December 31, 1932, is now ready for distribution among those who keep complete files.

In this index are listed all of the important articles which have appeared between July 2 and December 31. It will be supplied free of charge to those making application.

Nebraska Supreme Court Rulings on Workmen's Compensation Law.

The Nebraska Supreme Court has recently extended the provisions of the workmen's compensation law over workers still farther in the face of warnings from lawyers of insurance companies that they would force rates still higher in that state. Recent decisions may be summarized as follows:

That in spite of the statement of the law that compensation can not be claimed where the injury occurs on the premises of some one other than the employer and when the employer is not directing the work, this shall not apply if the work is being done for a company in a man's shop under a contract that he shall give precedence to all orders sent him.

That although the law says that in determining the basis upon which to figure lost earnings, the allowance for board and lodging while away from home shall not be used unless the figure has been determined on in advance. Where these are easily ascertainable, they shall be considered; the court holding that as all compensation appeals are equity cases, the rule of equity that that which is capable of being made certain shall be regarded as certain, applies.

That where a company with headquarters in Nebraska sends Nebraskans with whom it has made contracts of employment in Nebraska to other states, the Nebraska workmen's compensation laws shall govern in ascertaining and fixing awards for injuries, and not that of the state where the employe was hurt, holding that the work in other states is merely incidental to the industry as carried on in the state.

That where a truck owner is employed to furnish gravel to a road contractor and his time and the manner of his work is governed by the orders of the contractor, he is an employe and not an independent contractor; and that where the county fails to require the contractor to take out compensation insurance it is jointly liable with him for any awards for injuries to employes.

That where the driver of a truck leaves his vehicle to rescue a fellow employe who has become embroiled with a third person over a gambling game and is killed, his widow cannot recover under the workmen's compensation law. The court held that he was a volunteer who went where duty did not call and that there was no casual connection between his work and the injury sustained.

Small Nebraska Rural Companies Authorized to Reduce Rates.

A number of the smaller telephone companies in Nebraska, largely those that are farmer-owned, have recently been permitted to reduce rates.

The Alvo Telephone Co. of Alvo was allowed to reduce business rates from $2.00 to $1.75 a month for wall and from $2.25 to $2.00 for desk sets, and residence and farm rates from $1.40 and $1.41 to $1.00, with authority to add 25 cents a month where payments in advance are not made in accordance with the rules. The company has ten business stations, 38 residence and 81 rural stations.

The Odell Telephone Co. was authorized to make a rate of $2.00 for business and

$1.25 for residence and farm service, with a dollar a year deducted for advance payment for that period. It has 25 business, 64 residence and 301 rural stations and is largely farmer-owned.

The Hay Springs Telephone Co. was permitted to put in emergency lower rates for an indefinite period in order to secure retention of farm patronage.

The Sutherland-Fairview Telephone Co., a farm line that sells service, was allowed to reduce its net rate for service from $1.50 to $1.25 a month.

Reduced Telephone Rates Filed by Small New York Company.

The Patrons Telephone Co., Inc., has filed with the New York Public Service Commission a new schedule of telephone rates, effective January 1, 1933, in its territory which includes portions of Onondaga, Oswego and Cayuga counties, New York.

The new rates reduce charges for individual and multi-party line stations and for business extension stations. The new rates will reduce the annual revenue of the company about $800.

Individual line business service is reduced from $2.00 to $1.75 per month. Individual line resident service is reduced from $1.75 to $1.50 per month. Multi-party line business service is reduced from $1.75 to $1.50 per month and multi-party resident service from $1.50 to $1.25 per month. Business extension stations are reduced from 75 cents to 62½ cents per month.

Ask Discontinuance of "Free Service"; Cannot Maintain Line.

The Central Nebraska Telephone Co., of Grant, Neb., has applied to the Nebraska State Railway Commission for authority to discontinue the operation of a line between its exchange at Palisade and that of the Hamlet Telephone Co. of Hamlet, between which free service has been given to all subscribers.

This was made possible by the patronage of persons taking service over the line from farms between the two towns. These subscribers have not paid anything since last July, and the company says it must have revenue in order to maintain the line.

The Hamlet company has a Bell toll line on its exchange and could still reach the outside world. The commission has asked for more detailed information.

Commission Approves Independent Sale to New York Bell.

The New York Public Service Commission has consented to the transfer of the Salisbury Center Telephone Co., Inc., which serves about 86 subscribers in and about the village of Salisbury Center, Herkimer county, to the New York Telephone Co. The commission approved the transfer by a three to two vote.

The Salisbury Center company proposed to sell all its physical telephone property on or before April 1, 1933, to the New York Telephone Co. for $5,000 in cash, plus the value of net additions, if any, in fixed capital assets made by the Salisbury Center company subsequent to Septmber 24, 1932, and up to the date of transfer of title. The approval of the transfer is not to be construed as a determination by the commission of the value of any of the property to be transferred.

The order consenting to the transfer was adopted by the votes of Chairman Milo R. Maltbie and Commissioners Neal Brewster and Maurice C. Burritt. Commissioners George R. Van Namee and George R. Lunn voted against the approval of the transfer.

By the same vote of three to two the commission adopted reports of the hearing examiner, W. E. Hinman, recommending the approval of the transfer as in the public interests. The reports point out that the transfer will result in a needed improvement in the facilities and service available to the residents of the territory now served by the Salisbury Center company. Chairman Maltbie and Commissioners Brewster and Burritt voted to adopt the reports and Commissioners Van Namee and Lunn voted against the adoption of the reports.

The report of the hearing examiner contained a statement by the attorney of the New York Telephone Co. to the effect that if the application is approved, "the company will understand that the . . . commission will not raise objection to the company's application of its legally filed rates appropriate for such locality."

Chairman Maltbie and Commissioner Burritt filed a joint memorandum in which they held that the commission "does not assent to any understanding and will not be a party to any understanding which is not contained in the order of the commission in this case. They stated that it is a serious question whether, under present conditions, rural communities desire higher rates even though service may be approved over what they have been receiving.

Commissioner Brewster made a statement approving the transfer without commitment as to future rates to be charged. He stated that he may approve fixing of New York Telephone Co.'s rural rates when the proper time comes, but would not bind himself by his vote in this proceeding as to his future determination in another proceeding.

Commissioner Van Namee filed a memorandum stating that he was unwilling to vote for the transfer unless, at the same time, a study is presented showing that some return on present value of the property, plus the expected cost of the improvements and betterments necessary to bring the standard of this service to that of the New York Telephone Co. for similar conditions, will be obtained by an increase to the New York Telephone Co.

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rates for similar territories after such additional expenditures have been made.

He stated that "if this community does not desire better telephone service, this proposed transaction should not be authorized; if better service is desired, this community must expect to pay for it."

Summary of Commission Rulings and Schedule of Hearings.

INTERSTATE COMMERCE COMMISSION

January 18: Hearing in Washington, D. C., before Examiner Davis on joint application of the Bell Telephone Co. of Pennsylvania and the Forest Telephone & Telegraph Co. for authority by the Bell company to purchase the properties of the Forest company, which owns and operates a telephone system consisting of exchanges and toll lines in portions of the counties of Clarion, Forest, Venango and Warren, in the state of Pennsylvania, serving approximately 587 telephone stations, for the sum of $50,000.

The Bell company of Pennsylvania is also engaged in business in the same counties in which the Forest company operates. The lines of the Forest company and the Bell company are connected for the interchange of service but no competition exists in the rendition of telephone service in the portions of the counties operated by the Forest company.

ALABAMA.

January 9: Hearing in Montgomery on petition requesting authorization of the sale by J. E. Oliver, to R. C. Carr, of all telephone properties and assets of the Oneonta Telephone Co., located in and near the town of Oneonta.

ILLINOIS.

December 28: Authority granted the Champaign County Telephone Co., with main offices in Philo, to issue and sell 500 shares no-par common stock at not less than $10 a share. The commission has approved the use of $2,599 of the stock sale receipts for working capital and $2,400 for discharge or lawful refund of certain financial transactions.

January 3: Hearing in Springfield before Commissioner Kuhn on application of the Illinois Bell Telephone Co. for an order authorizing the issue of $21,000,000 of its unsecured demand notes.

January 4: Hearing in Springfield before Commissioner Samuell on application of the Southwestern Bell Telephone Co. for authority to furnish certain commuted toll service in the Edgemont exchange area and to discontinue certain other classes of service now furnished in that area.

LOUISIANA.

January 9: Hearing in Shreveport on complaint of citizens of Shreveport and Caddo Parish against the rates of the Southern Bell Telephone & Telegraph Co. asking for reduction of rates and installation and removal charges.

The commission will allow the citizens to file motions and applications for financial sheets and statements of the company, including orders showing revenues, disbursements and expenditures, in order that those representing the citizens may be able to present their testimony at a future date.

January 9: Hearing in Shreveport on complaint of the commission on its own motion against the Southern Bell Telephone & Telegraph Co., concerning the improvement of exchange facilities and service at Farmerville.

January 12: Hearing in New Orleans on complaint of residents of the Cedar exchange in New Orleans, against rates Southern Bell Telephone & Telegraph Co.

MINNESOTA.

January 10: Continued hearing, postponed from December 12, on rate investigation of the Tri-State Telephone & Telegraph Co. in the St. Paul area.

NEBRASKA.

December 26: Application filed by Central Nebraska Telephone Co., of Grant, to discontinue line connecting it with exchange of Hamlet Telephone Co. at Hamlet.

December 27: Application of the Hay Springs Telephone Co. for authority to install reduced emergency rates for an indefinite period, found reasonable and granted.

December 27: Application of the Sutherland-Fairview Telephone Co. for authority to reduce service rates 25 cents a month, approved.

December 27: Application of the Alvo Telephone Co. for authority to reduce business rates 25 cents and residence and farm 40 and 41 cents a month respectively, approved.

December 27: Application of the Pierce Telephone Co. for authority to reduce rates, dismissed on application of company.

December 27: Application of the Lincoln Telephone & Telegraph Co. for permission to cancel grounded rates at certain named exchanges, dismissed for want of prosecution.

December 27: Application of the Odell Telephone Co. for authority to reduce rates, approved.

NEW YORK.

December 29: The Worcester Telephone Co., Inc., filed a new schedule of rates to be effective January 1 in East Worcester and surrounding territory in Otsego county.

December 29: New schedule of reduced telephone rates filed by the Patrons Telephone Co., applicable to its territory located in Onondaga, Oswego and Cayuga counties, effective January 1.

OHIO.

December 30: Evidence completed at final hearing in rate investigation of the Ohio Bell Telephone Co., which has been in progress for eight years. Briefs by both the state and the company are expected to be filed early in January.

January 15: Hearing on the application of the Snortin' Ridge Telephone Co. for a certificate of public convenience and necessity.

WISCONSIN.

December 27: Five telephone companies, previously granted permission to reduce their rates, authorized to continue the reduced rates after the expiration date of the original order. The companies are: Mt. Horeb Telephone Co., Arkansaw Telephone Co., Eleva Farmers' Telephone Co., Home Telephone Co. of Durand, and the Cuba City Telephone Exchange Co.

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